



Post-Pam: lessons learned for [German] development cooperation in Vanuatu and the Pacific

A study commissioned by the Global Programme on Risk Assessment and
Management for Adaptation to Climate Change

Acknowledgments

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It was developed in close cooperation with the programme Coping with Climate Change in the Pacific Island Region (CCCPIR), commissioned by the Federal Ministry for Economic Development and Cooperation and implemented by GIZ and the Pacific Community (SPC). The findings of this study are based on desk research and a mission to Vanuatu. Furthermore, the Post-Disaster Needs Assessment (PDNA) conducted by the Government of Vanuatu provided valuable insights which were incorporated in this study.

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The information and recommendations of the study do not automatically reflect the opinion of BMZ or GIZ.

About the GIZ global programme on Risk Assessment and Management for Adaptation to Climate Change (Loss and Damage)

The most recent projections in climate research anticipate a significant increase in the frequency and/or intensity of **extreme weather events** as well as **slow-onset climate-induced changes**. Despite mitigation and adaptation, residual loss and damage (L&D) is expected to occur. To address L&D appropriate measures are needed where **limits of adaptation** are reached. L&D has been recognized under the **UNFCCC** and the topic especially gained importance with the establishment of the Warsaw International Mechanism for Loss and Damage associated with climate change impacts (**WIM**). Against this background, the German Federal Ministry for Economic Cooperation and Development (BMZ) commissioned the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH with the implementation of the global programme *Risk Assessment and Management for Adaptation to Climate Change (Loss and Damage)*.

The programme aims to generate practical experience and recommendations in the field of comprehensive climate risk management to **support the German development cooperation (BMZ) and its international partners** in regions severely affected by climate change.

To reach its goal the programme focuses on:

- creating tried-and-tested **guidelines on climate risk assessment and comprehensive climate risk management** – e.g. *conduction of climate risk assessments in partner countries*
- **enriching knowledge** on climate risk and loss and damage in **key sectors** and on **key topics** – e.g. *risk transfer including climate risk insurance, migration, non-economic loss and damage, resilient recovery (UNISDR Sendai Framework), private sector (SME), fisheries and coastal management*
- **enhancing capacities** in partner countries as well as **initiating and facilitating dialogue** among stakeholders of different sectors and levels (local, sub-national, national and international) – e.g. *training course on comprehensive climate risk management, events, publications*
- supporting BMZ in the **international climate policy debate under the UNFCCC** – e.g. *strengthening the German contribution to the Warsaw International Mechanism for Loss and Damage (WIM)*

The global programme has a term of six years (Dec. 2013 – Dec. 2019) and operates **pilot activities in different regions**, e.g. The Pacific Island Countries, South Asia (India), Central America and East Africa (Tanzania).

Executive summary

Tropical Cyclone (TC) Pam was one of the worst natural disasters in the history of Vanuatu. The country suffered loss and damage to an extent that vastly overwhelmed its own capacities. A strong El Niño, in the months following the cyclone, acted as additional multiplier for existing development problems, especially with regard to water and food security in rural areas. In many ways, the cyclone and its impacts reflect political, conceptual and operational challenges that lie at the heart of the current debate on loss and damage (L&D) and clearly illustrate the need for comprehensive climate risk management (CRM).

TC Pam has been recognised as an opportunity to learn lessons and draw up recommendations for [German] development cooperation (DC) and its partners in the region on how to address the issue of comprehensive climate risk management, including climate risk insurance. The objectives of this study were to identify those lessons in order to inform Germany's current and future regional cooperation in Vanuatu and the South Pacific region.

This report gives an **overview and socio-economic characteristics, disaster risk and CRM institutions and programmes in Vanuatu and the region and provides background on activities of German development cooperation**. It further presents the main findings on **lessons learned** from the **response and recovery phase** based on a review of available documentation and a mission to Vanuatu in October 2015. The last chapter details **recommendations** developed by the mission team.

Climate change represents one of the greatest challenges facing the South Pacific region. In response to these challenges, the Pacific is the first region in the world that integrates climate change and disaster risk management into a single overarching regional strategy. A number of multilateral and bilateral cooperation projects have been agreed to support the region in these efforts, including the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI).

Germany has been supporting Pacific island countries through development cooperation for nearly forty years. Increasingly, GDC is taking systematic account of climate change-related effects as well as countermeasures. The Coping with Climate Change in the Pacific Island Region (CCCPPIR) programme aims to advance adaptation to climate change in various sectors in 15 countries. During its G7 Presidency, the German Government promoted InsuResilience, an initiative on climate risk insurance.

TC Pam struck Vanuatu on the evening of 13 March 2015. While 11 people were killed during the storm, it is likely that much greater loss of life was prevented by the high level of community preparedness, timely and accurate warnings and community responsiveness. According to the Post-Disaster Needs Assessment (PDNA), TC Pam had an impact equivalent to 64.1% of gross domestic product. The Government of Vanuatu appealed for international support to respond to the crisis. The GoV relied mainly on a post-disaster financing mechanism, with donor assistance representing the most important source of funding. In spite of enormous logistical constraints, the initial response phase saw significant achievements.

The current situation in Vanuatu shows how two consecutive extreme climate events can lead to a severe crisis in a society previously considered quite resilient. Although the affected population immediately embarked on self-recovery, applying the 'build back better' principle is still a challenge. Looking beyond the current crisis, it has furthermore become apparent that a comprehensive approach to DRM and CRM requires strengthening. On the other hand, integration and mainstreaming is making promising progress, and Vanuatu is leading a regional shift in the way it integrates climate change and disaster risk reduction governance and implementation.

The events surrounding TC Pam confirmed that Vanuatu is generally very well prepared for cyclones. However, with the vast majority of houses suffering damage, they also revealed the island's limited capacity to mitigate the impacts of cyclones. While response activities were quick and effective, it became obvious that the scale of the international response overwhelmed national capacities to absorb such assistance. A number of recommendations therefore emerge on how to improve coordination and communication, and to ultimately ensure the sovereignty of the GoV in such emergencies.

Future challenges are centred on two pillars. For each of these pillars, this study identifies more specific fields of activity that will strengthen capacities in Vanuatu and the region to further reduce climate risks and better cope with loss and damage. The first pillar involves **more comprehensive assessment of immediate and long-term climate risks at local, national and regional level in order to further reduce climate-related risks**. Fields of activity include support for further risk assessments and the ongoing DRM decentralisation process, further integration of disaster risk reduction (DRR) and climate change adaptation (CCA), mainstreaming into economic and sectoral planning, and the integration of early warning processes, especially downstream.

The second pillar concerns **financial resources for the implementation of CCA and DRR activities and disaster financing**. Given Vanuatu's particular circumstances, support should be directed to Vanuatu's National Implementing Entities accreditation roadmap and to the establishment of both a national trust fund for climate change and disaster risk reduction and a small grants scheme. DC can also assist in strengthening financial management and governance. In terms of disaster financing, DC should explore options for climate change and disaster risk-sharing schemes.

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Abbreviations and acronyms

AA	German Federal Foreign Office
ACSE	Adapting to Climate Change and Sustainable Energy Programme
ADB	Asian Development Bank
AOSIS	Alliance of Small Island States
AUD	Australian Dollar
BMUB	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
BMZ	German Federal Ministry for Economic Cooperation and Development
CC	Climate Change
CCA	Climate Change Adaptation
CCCPIR	Coping with Climate Change in the Pacific Island Region
CCDRR Policy	National Policy on Climate Change and Disaster Risk Reduction
CDCCC	Community Disaster & Climate Change Committee
COP	Conference of Parties
CRM	Climate Risk Management
CROP	Council of Regional Organisations in the Pacific
DLA	Department of Local Authorities
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EbA	Ecosystem-based Adaptation
EU	European Union
EUR	Euro
FRDP	Framework for Resilient Development in the Pacific
G7	Group of Seven (US, Japan, Germany, the UK, France, Italy and Canada)
GDC	German Development Cooperation
GDP	Gross Domestic Product
GFDRR	Global Facility for Disaster Reduction and Recovery
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GoV	Government of Vanuatu
IKI	International Climate Initiative
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
L&D	Loss and Damage
MALFFB	Ministry of Agriculture, Livestock, Forestry, Fisheries and Biosecurity
MCC	Ministry of Climate Change Adaptation, Meteorology, Geo-Hazards, Energy, Environment and Disaster Management
NAB	National Advisory Board on Climate Change and Disaster Risk Reduction
NAP	National Action Plan
NAPA	National Adaptation Programme of Action
NDMO	National Disaster Management Office
NEOC	National Emergency Operation Centre

NIE	National Implementation Entity
PCRAFI	Pacific Catastrophe Risk Assessment and Financing Initiative
PDNA	Post Disaster Needs Assessment
PEBACC	Implementing Ecosystem-based Adaptation
PHT	Pacific Humanitarian Team
PICT	Pacific Island Countries and Territories
PIF	Pacific Islands Forum
PIFS	Pacific Island Forum Secretariat
PMO	Prime Minister's Office
PPP	Purchasing Power Parity
RCF	Rapid Credit Facility
RGA	Risk Governance Assessment
RRU	Risk and Resilience Unit
RSR	Regional Synthesis Report
SDR	Special Drawing Rights
SIDS	Small Island Development States
SLR	Sea-level rise
SPC	The Pacific Community, previously: Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
SST	Sea-surface temperatures
TC	Tropical cyclone
UNFCCC	United Nations Framework Convention on Climate Change
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
USD	United States Dollar
VHT	Vanuatu Humanitarian Team
VMGD	Vanuatu Meteorology and Geo-Hazards Department
VT	Vatu (currency of Vanuatu)
WB	World Bank
WIM	Warsaw International Mechanism for Loss and Damage
PDNA	Post Disaster Needs Assessment
PEBACC	Implementing Ecosystem-based Adaptation
PHT	Pacific Humanitarian Team
PICT	Pacific Island Countries and Territories
PIF	Pacific Islands Forum
PIFACC	Pacific Islands Framework for Action on Climate Change
PIFS	Pacific Island Forum Secretariat
PMO	Prime Minister's Office
PNG	Papua New Guinea
PPDRM	Pacific Platform for Disaster Risk Management
PPP	Purchasing Power Parity

PRRP	Pacific Risk Resilience Programme
RCF	Rapid Credit Facility
RCP	Representative Concentration Pathway
RFA	Pacific Disaster Risk Reduction and Disaster Management Framework for Action
RGA	Risk Governance Assessment
RMI	Republic of the Marshall Islands
RRU/FSAC	Risk and Resilience Unit / Food Security and Agriculture Cluster
RSR	Regional Synthesis Report
SAMOA	SIDS Accelerated Modalities of Action Pathway
SDR	Special Drawing Rights
SIDS	Small Island Development States
SLR	Sea-level rise
SPC	The Pacific Community, previously: Secretariat of the Pacific Community
SPCR	Pacific Regional Strategic Program for Climate Resilience
SPCZ	South Pacific Convergence Zone
SPREP	Secretariat of the Pacific Regional Environment Programme
SRDP	Strategy for Climate and Disaster Resilient Development in the Pacific
SST	Sea-surface temperatures
TC	Tropical cyclone
UNDAC	United Nations Disaster Assessment and Coordination
UNDP	United Nations Development Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
UNISDR	United Nations International Strategy for Disaster Reduction
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
USD	United States Dollar
USP	University of the South Pacific
VHT	Vanuatu Humanitarian Team
VMGD	Vanuatu Meteorology and Geo-Hazards Department
VT	Vatu (currency of Vanuatu)
WARD	Working Arm on Climate and Disaster Resilient Development
WB	World Bank
WHO	World Health Organization
WIM	Warsaw International Mechanism for Loss and Damage
WOI	Whole of Islands

1. Introduction

Generally, there is a high level of awareness among key stakeholders in Vanuatu of the risks associated with climate change and natural disasters. The Pacific Island Nation is increasingly proactive in building resilience to natural hazards and climate change. Tropical Cyclone (TC) Pam, however, was one of the worst natural disasters in the history of the country. Vanuatu suffered loss and damage to an extent that vastly overwhelmed its own capacities. In many ways, the cyclone and its impacts reflect political, conceptual and operational challenges that lie at the heart of the current debate on loss and damage (L&D) and clearly illustrate the need for comprehensive climate risk management (CRM).

TC Pam has been recognised as an opportunity to learn lessons and draw up recommendations for [German] development cooperation (DC) and its partners in the region on how to address the issue of comprehensive climate risk management, including climate risk insurance. The objectives of this study were to identify those lessons in order to inform Germany's current and future regional cooperation in Vanuatu and the South Pacific region.¹

The study gives an overview of socio-economic characteristics, disaster risk, and CRM institutions and programmes in Vanuatu and the region. It presents main findings from the response and recovery phase based on a review of available documentation, and synthesises results of various stakeholder assessments and workshops on lessons learned and findings from a mission to Vanuatu, which took place in October 2015. It draws on interviews with partners and stakeholders in Germany, Vanuatu and the region. The report ends on conclusions and recommendations developed by the mission team.

¹ The recommendations developed within this study represent exploratory findings and do not establish guidelines for German development cooperation.

2. Context

Conceptual considerations: Loss and Damage and Comprehensive Climate Risk Management

Weather and climate-related loss and damage have increased dramatically over the past few decades. The most recent projections in climate research all anticipate a significant increase in the frequency and/or intensity of extreme weather events and slow-onset climate-related changes. These represent a growing risk to the sustainable development of all countries and of LDCs in particular. The world's poorest countries are most vulnerable to

climate variability and change, as they lack the institutional, economic and financial capacity to cope with climate-related effects.

There is increasing recognition that **adaptation and mitigation** will not be enough to manage the impacts of climate change (CC). As a result, the issue of loss and damage (L&D) has become a feature of international climate negotiations under the United Nations Framework Convention on Climate Change (UNFCCC).

Loss and Damage

In the context of climate change and the UNFCCC, the concept of Loss & Damage (L&D) generally refers to the negative impacts of human-induced climate change. This is not a new topic. The Alliance of Small Island States (AOSIS) has constantly raised this issue since the very beginning of UNFCCC negotiations more than 20 years ago. In recent years, the issue of L&D has reached the COP agenda. Finally, COP19 (2013) led to the establishment of the Warsaw International Mechanism (WIM) on L&D.

As yet, there is no universally agreed definition of L&D. According to the UNFCCC working definition, Loss and Damage (L&D) represents the “actual and/or potential manifestation of impacts associated with climate change in developing countries that negatively affect human and natural systems”. It “can be economic and non-economic” and “usually is the result of climate-related sudden onset events and gradual changes in interaction with a particular development path that either reduces or exacerbates the risk of loss and damage.” (UNFCCC SBI, 2012)

Comprehensive Climate Risk Management

Climate risk management is closely related to development processes. According to the Intergovernmental Panel on Climate Change (IPCC), risks of climate-related impacts evolve from the interaction of climate-related hazards (including extreme events and slow-onset phenomena), vulnerability and exposure of human and natural systems. According to this framework, changes in both the climate system and socio-economic processes—including adaptation and mitigation—drive hazards and vulnerabilities.

This concept sets a framework for defining the scope and elements of comprehensive climate risk management (CRM). According to this understanding, comprehensive CRM comprises a wide range of elements including risk analysis, risk reduction and prevention, preparedness, response, financial protection, risk transfer, reconstruction and rehabilitation. Comprehensive CRM aims to achieve climate and disaster-resilient development and is therefore closely linked to the shaping of socio-economic processes, development planning and budgeting. This includes mitigation, adaptation and transformation policies and strategies.

TC Pam was the most intense tropical cyclone in the Southern Hemisphere in 2015. It is regarded as one of the worst natural disasters in the history of Vanuatu. In many ways, the cyclone and its impacts reflect political, conceptual and operational challenges that lie at the heart of the current debate on L&D. The uncertainty surrounding the distinction between stochastic phenomena and climate change-induced events and trends makes it difficult to draw any firm conclusions on whether TC Pam was a manifestation of natural climatic variability or anthropogenic climate change. Furthermore, climate risks and related loss and damage are due to a combination of climate hazards and man-made vulnerability factors. This complexity makes it difficult to clearly attribute risks and impacts to specific factors.

TC Pam therefore clearly illustrates the need for comprehensive CRM that integrates climate change mechanisms and disaster risk management approaches and does not discriminate between human-induced climate-related hazards and hazards that arise as part of natural climate variability.

Germany's engagement in climate risk management in the Pacific

Germany has been supporting Pacific island countries through development cooperation for nearly 40 years. Overall, GDC is increasingly taking systematic account of climate-change related effects as well as counter measures. The number of projects focusing specifically on mitigation or adaptation is rising, as is the level of funding.

Current GDC support aims to strengthen the capacities of Pacific Island Countries and regional organisations to cope with the anticipated effects of climate change, which will affect communities across the region. There is intensive coordination in the region, involving all regional and national partners, multilateral organisations, bilateral donors and academia.

The Coping with Climate Change in the Pacific Islands Region (CCCPIR) programme, implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ), aims to advance adaptation to climate change in various sectors in 15 countries. CCCPIR advises island state governments on developing policies and strategies to prepare key sectors of the economy for anticipated climate-related events.

Besides CCCPIR, the following projects supported by GDC are currently operating in the Pacific:

- Climate Protection through Forest Conservation in the Pacific Island Countries (2010–2015); Marine and Coastal Biodiversity Management in Pacific Island Countries and Atolls (2013–2018);
- Natural Solutions to Climate Change in the Pacific Islands Region: Implementing Ecosystem-based Adaptation (PEBACC, 2015–2019), implemented by the Secretariat of the Pacific Regional Environment Programme (SPREP);
- Ecosystem-based Adaptation (EbA), funded under the International Climate Initiative (IKI) and implemented by The Nature Conservancy, the Federated States of Micronesia, Palau, Papua New Guinea and the Republic of the Marshall Islands;
- GCF Readiness programme in Vanuatu and Climate Change Finance Readiness for the Pacific to strengthen Pacific Island countries' capacity to access climate finance. The project aims to work in Kiribati, Samoa, Solomon Islands, Tuvalu and Vanuatu and is jointly funded by GDC and the Australian Department of Foreign Affairs and Trade (DFAT).

GIZ also acts as implementing partner for the EU-funded programme Adapting to Climate Change and Sustainable Energy (ACSE), which supports 15 Pacific island countries in adapting to climate change impacts.

Pre-Pam, several **community-level disaster resilience** adaptation strategies had been piloted under German Development Cooperation in Vanuatu: GDC had provided Solar Food Dryers, which enable communities to dry, preserve and store fresh fruits, nuts and vegetables for future times of need. It is estimated that these solar dryer trainings and installations had reached over 10,000 people in Vanuatu before Cyclone Pam, ensuring the availability of dried food for the post-disaster period. GDC has also worked alongside the Department of Agriculture to pilot and refine a livestock silage technique. Due to this, communities were able to keep a few select pigs alive for emergency protein requirements. Furthermore, GDC had been involved in the collection and dissemination of Traditional Indigenous Knowledge around cyclone response and recovery (and other climate hazards), which enabled people to share and combine strategies developed on the different islands. This collection of knowledge has been publicly available on the web portal of the Vanuatu

National Advisory Board on Climate Change on Climate Change and Disaster Risk Reduction.

Climate risk insurance is gaining importance as a vital instrument within comprehensive climate risk management. It can play numerous roles in providing security against the loss of assets, livelihoods and even lives in the post-disaster period.

During its G7 Presidency, the German Government promoted **InsuResilience**, an initiative that aims to increase the number of people in the most vulnerable developing countries with access to direct or indirect climate risk insurance coverage by up to 400 million by 2020. The initiative is expected to stimulate the creation of effective climate risk insurance markets and smart use of insurance-related schemes for people and assets at risk in developing countries. This will complement intensive climate change adaptation, risk management and poverty reduction, and underpin economic development. It builds on successful facilities and insurance schemes such as the African Risk Capacity (ARC), the Caribbean Catastrophe Risk Insurance Facility (CCRIF) and the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI).

InsuResilience is designed to address the extreme poor and vulnerable people in developing countries, earning less than USD 1.25 (Purchasing Power Parity (PPP)) per day, and the poor, earning less than USD 2.00 (PPP) per day. The capacity to pay premiums for direct insurance is a decisive and often limiting factor for this target group. The initiative therefore focuses on indirect approaches and insurances, where the final intended beneficiary benefits indirectly from payments intermediated by an insured government. Activities to improve risk analysis and preventive measures to reduce risk need to be put in place alongside insurance projects. Incentives to adopt adaptation measures can be integrated into an insurance scheme. Finally, insurance providers will need to supply products and services in a responsible manner, ensuring that these meet beneficiaries' needs and provide genuine client value at all levels to informed policyholders and beneficiaries.

The devastating impact of TC Pam demonstrates the **need for accelerated climate risk management in the Pacific**. It represents an opportunity to learn lessons and draw up recommendations for DC and its partners in the region on how to address the issue of comprehensive climate risk management, including climate risk insurance.

In this context, the Global Programme on Risk Assessment and Management for Adaptation to Climate Change commissioned this study, developed in close cooperation with the CCCPIR programme.

CCCPIR IN VANUATU

In Vanuatu, the CCCPIR programme aims to coincide with and enhance the existing matrix of donors and adaptation initiatives. The programme is directly aligned with GoV policy priorities, and specifically geared towards implementing the Priorities and Action Agenda's Strategic Priority on Climate Change. The programme has supported preparations for Vanuatu's new National Sustainable Development Plan 2016–2030 and helped to shape sectoral policies. It continues to aid implementation.

A key area of the CCCPIR programme of support to the Government of Vanuatu has been the restructuring and institutional reform of governance of national climate change and disaster risk reduction. From the outset in 2011, CCCPIR has supported the government in implementing and strengthening the NAB, the supreme policy-making and coordination body on these issues.

CCCPIR also helps government and civil-society actors responsible for climate change and adaptation to design and carry out appropriate adaptation, mitigation and pilot measures.

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- **enhancing capacities** in partner countries as well as **initiating and facilitating dialogue** among stakeholders of different sectors and levels (local, sub-national, national and international) – e.g. *training course on comprehensive climate risk management, events, publications*
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3.

Vanuatu and the region

Overview

The **Pacific islands region** includes all 24 island nations or territories of the tropical Pacific Ocean. The Pacific Island Countries are politically organised under The Pacific Island Forum (PIF).² Their climate change-related interests are represented by the Small Island Development States (SIDS) Group, the associated Alliance of Small Island States (AOSIS) and the Least Developed Countries (LDC) mechanism. In this vein, Vanuatu has long addressed L&D as a possible consequence of climate change within the United Nations Framework Convention on Climate Change (UNFCCC).

The **Republic of Vanuatu** is a small nation in the South Pacific, comprising around 80 islands dispersed across 12,200 km². Most islands are steep, have unstable soils and

little permanent fresh water. Less than 10% of land is used for agriculture. The population density is relatively high, and inhabitants are almost entirely Melanesian. At the same time, Vanuatu is one of the most ethnically diverse countries in the world.

Vanuatu faces similar geographical and structural challenges to other countries in the South Pacific region. Their remoteness, small size and internal dispersion impose additional trade and transportation costs. The same factors also push up the cost and complexity of providing public services and fulfilling basic government functions. While extreme poverty and hunger are rare, much of the population lacks access to basic services.

Since launching the Comprehensive Reform Programme in 1997, Vanuatu has become one of the fastest growing

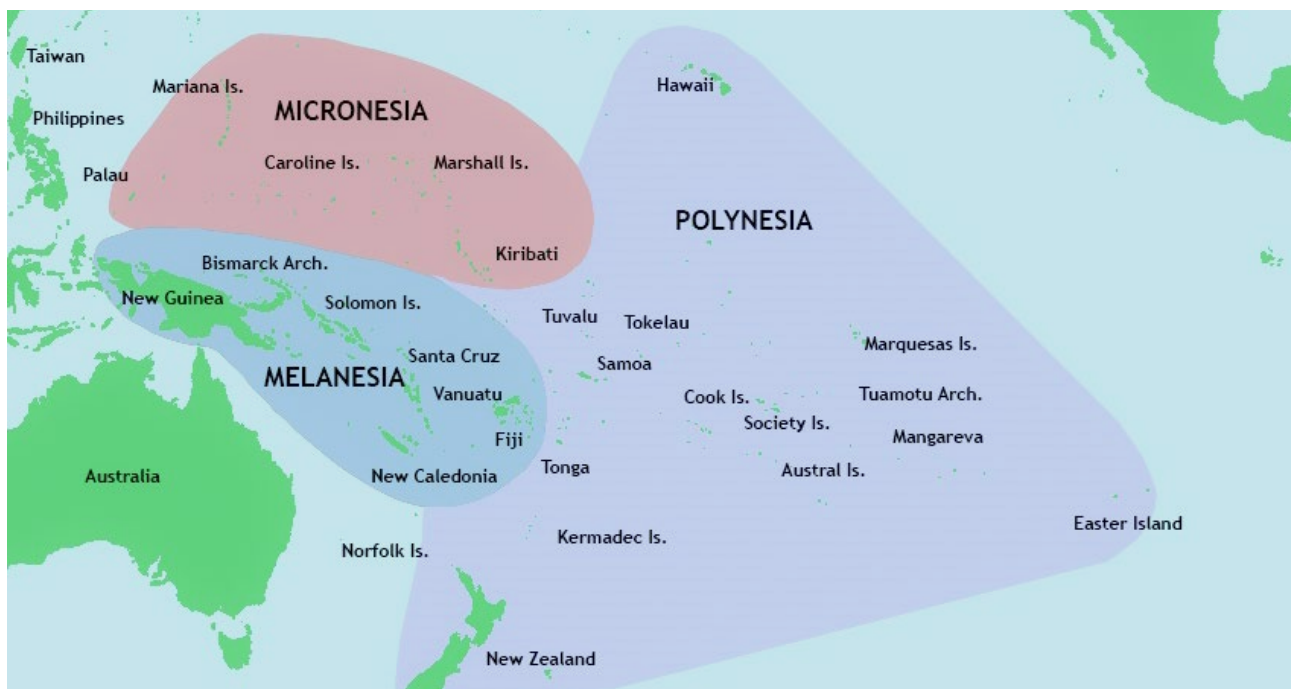


Figure 1: Pacific islands and cultures (Source: Wikimedia Commons)

² Members of the Pacific Island Forum are Australia, Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.

economies in the Pacific region. Economic growth averaged 6% a year in 2003–2008, driven primarily by tourism, construction and development aid. Growth has been largely confined to urban areas, leaving rural communities with little access to improved infrastructure and alternative income opportunities.

Climate risks in Vanuatu and the region

Climate change represents one of the greatest challenges facing the South Pacific region. **Consequences of global warming** such as rising sea levels, increasing temperatures, changing rainfall patterns and an increase in the frequency and severity of extreme weather events, droughts and floods jeopardise the development of the Pacific Islands (PICs). The PICs are among the world's most vulnerable countries in terms of climate change-related effects. Climate change will exacerbate current problems facing agriculture and food security, energy requirements, workforce retention, public health, protection of the environment and indigenous flora and fauna, and national government stability and security.

Vanuatu leads the rankings of the 2014 and 2015 **World Risk Index** as the country most at risk worldwide. This is due to a combination of exposure to both geophysical and hydro-meteorological hazards, and limited financial and technical capacity to prepare for and respond to associated risks.

Between 1980 and 2012, Vanuatu experienced approximately 53 disaster events, of which 46% were earthquakes and 35% tropical cyclones. Floods, volcanic activity, and storm surges make up the rest. Estimates suggest that these affected around 300,000 people (*PDN 2013*).

The last 60 years have seen almost 1,000 tropical cyclones with hurricane-force winds, a yearly average of about 16. Since 1990, Vanuatu has experienced at least 20 damaging tropical cyclones (*World Bank 2015*). The most significant cyclones before TC Pam in recent years were Uma in 1987 and Ivy in 2004, each affecting nearly 50,000 people and causing destruction that amounted to tens to hundreds of millions of US dollars

The Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) estimates average annual losses of USD 48 million from natural disasters. This equals 6.6% of gross-domestic product (GDP), making it one of the highest impacts in the world. In the coming 50 years, Vanuatu has a 50% chance of experiencing losses exceeding USD 330 million and 725 casualties, and a 10% chance of experiencing losses exceeding USD 540 million and 2,150 casualties (*World Bank 2015*).

In addition to its **high exposure to geophysical and hydro-meteorological hazards**, Vanuatu is already experiencing the consequences of **climate variability and change**, including sea-level rise, increased intensity of extreme events and changes to agricultural productivity and water availability (*GFDRR 2014*). Climate change is likely to impact on all sectors, especially agriculture, water, coastal and marine resources, infrastructure, and tourism. According to Vanuatu's National Adaptation Programme of Action (NAPA), its major climate change concerns are projected sea-level rise, sea-temperature rise and possible increases in cyclones and other major storm events. The current **sea-level rise** (SLR) of 6 mm/year is already above the global average of 3.2 mm/year, and will continue for a long time, even when atmospheric CO₂ concentrations and temperatures stabilise. Average and extreme **sea-surface temperatures** (SSTs) will increase. The same applies to average temperature and temperature extremes.

Disaster type	Event count	Total deaths	Total affected (approx.)	Total damage (USD million)
Storm – Tropical cyclone	16	79	290,000	205
Earthquake	8	12	15,000	n.a.
Volcano	5	0	19,000	n.a.
Flood	2	0	4,000	n.a.
Storm – Other	1	32	n.a.	n.a.
Tsunami	1	100	n.a.	n.a.
Landslide	1	1	3,000	n.a.
Average per year	1	6	9,500	> 5.9

Figure 2: Natural disasters in Vanuatu and their impact, 1980–2014 (*IMF 2015 based on EM-DAT*)

Vanuatu's economy is largely driven by industries that are susceptible to natural disasters. Livelihoods and the economy are highly dependent on natural resources, rainfed agriculture, fishery and tourism, all of which are in turn highly sensitive to already proven or predicted climate change-induced impacts.

Risks from climate change and geohazards are higher in areas where many people live. In Vanuatu, people live in two population centres (Port Vila and Luganville) and in coastal areas, making them more vulnerable to tsunamis, coastal flood events, and sea-level rises. Many Ni-Vanuatu settlements are located near riverbanks on unregistered land that is vulnerable to flooding.

The risk of loss of life and of livelihood assets (fields, animals, property etc.) due to extreme events is increasing. Slow-onset trends such as sea-level rise will furthermore increase the need to abandon traditional human settlements or assets (fields, aquaculture production sites, cemeteries etc.).

There is a high level of awareness among key stakeholders in Vanuatu of risks associated with climate change and natural disasters. Building **resilience** to natural hazards and climate change is among Vanuatu's most important development challenges. The Government of Vanuatu (GoV) has become increasingly proactive. Vanuatu is the first Pacific island country to have adopted both a **National Adaptation Programme of Action (NAPA)** for climate change adaptation and a **National Action Plan (NAP)** for disaster risk reduction (DRR). Recently, Vanuatu has launched a National Policy on Climate Change and Disaster Risk Reduction 2015–2030 (CCDRR Policy).

Integration of DRR/CCA policies and institutions in Vanuatu and the region

By replacing the previously separate regional frameworks on climate change and disaster risk management with the Framework for Resilient Development in the Pacific (FRDP), the Pacific is the first region in the world that integrates climate change and disaster risk management into a single overarching regional strategy. A number of multilateral and bilateral cooperation projects have been agreed to support the region in these efforts.

Among these initiatives, the **Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI)**, launched in 2007, aims to provide the PICs with disaster risk assessment and financing tools for enhanced disaster risk management and climate change adaptation. PCRAFI has been a joint initiative of the World Bank (WB), The Pacific Community (previously: Secretariat of the Pacific Community, SPC), and the Asian Development Bank (ADB), with financial support from the Government of Japan, the Global Facility for Disaster Reduction and Recovery (GFDRR) and the European Union. A regional initiative, the Pacific Catastrophe Risk Insurance Pilot (PACRIP), was established in January 2013 to test the viability of market-based sovereign risk insurance. Through InsuResilience and substantial funds from a multi-donor trust fund from various donors (Germany, USA, GB), PCRAFI will become a full-fledged risk insurance facility.

Vanuatu is a pioneer in integrating the governance and implementation of climate change and disaster risk reduction. The **institutional framework** in Vanuatu has been redesigned to align with these developments. The current set-up includes a line ministry (which assumes responsibilities for climate change adaptation, meteorology, geohazards, environment, energy and disaster management), a National Advisory Board on Climate Change and Disaster Risk Reduction (NAB) and a number of disaster and climate change committees at national, provincial, and local level. This framework is complemented by a number of networks involving national and international non-governmental organizations, which play an important role in information exchange and coordination.

With the establishment of the **National Advisory Board (NAB) on Climate Change and Disaster Risk Reduction** in 2012 and the Ministry of Climate Change Adaptation, Meteorology, Geo-Hazards, Energy, Environment and Disaster Management (MCC) in 2013, Vanuatu has reinforced its political will to streamline institutional arrangements for climate change and disaster risk reduction. As an advisory board, the NAB's primary role is to oversee the development of a detailed risk-based plan of action for climate change and disaster risk reduction in order to inform the government's annual budget. It has already shown its effectiveness at improving coordination and governance in response to climate change and disaster risks. Recently, Vanuatu has launched a National Policy on Climate Change and Disaster Risk Reduction (CCDRR Policy).

4. Tropical Cyclone Pam

Impact and response

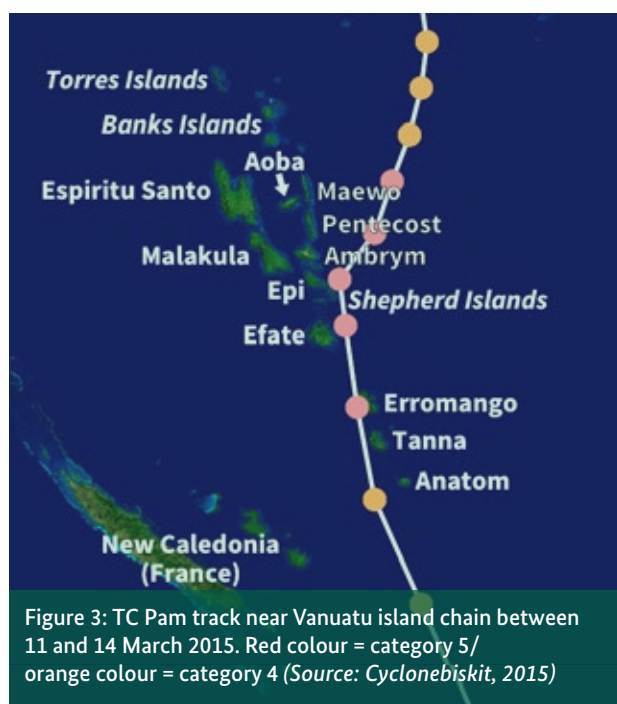
TC Pam struck Vanuatu on the evening of 13 March 2015. The category 5 cyclone caused **widespread damage** across five provinces of the archipelago and brought down communications systems linking the islands. The cyclone eye passed close to Efate Island where the capital Port Vila is located, with winds around 250 km per hour and gusts peaking at 320 km per hour. 11 people were killed during the storm. It is likely that much greater loss of life was prevented by the high level of community preparedness, timely and accurate warnings and community responsiveness.

As the cyclone approached, the Vanuatu Meteorology and Geo-Hazards Department (VMGD) transmitted warnings via SMS (text messaging), phone calls, HF (high frequency) radio and the internet. Mobile phone masts and HF radio antennas went down soon after the cyclone hit, but warnings were still sent over the internet.

The severe and widespread damage was worst on the larger islands of Tanna, Erromango and Efate. An estimated 65,000 people were displaced from their homes. Approximately 17,000 buildings were damaged or destroyed, including houses, schools, clinics, and other medical facilities. The tropical cyclone destroyed crops on a large scale and compromised the livelihoods of at least 80% of Vanuatu's rural population.

In the aftermath of the cyclone, the situation was aggravated by a strong **El Niño** impacting the Pacific Islands region, whose effects are believed to be the strongest in the Pacific for almost 20 years. According to a report from the Pacific Disaster Center, parts of the southwest Pacific and north Pacific were already experiencing drier than normal conditions in October 2015, with fears of a prolonged drought in the year ahead. From June to September, rainfall in Vanuatu has been lower than usual and maintaining access to safe drinking water and sanitation becomes even more of a daily challenge for many communities relying on small and fragile water resources. The report warns of an increased typhoon risk in the western and central-north Pacific for the rest of the year and higher tropical cyclone activity in the southwest Pacific between 2015 and 2016.

Severe **water shortages** in parts of the country are having a serious impact. Food crops, already battered by TC Pam, are now failing due to a lack of water. As much of the country's rainwater harvesting structures was destroyed when TC Pam struck, many communities are having enormous difficulties in collecting and storing what little rain has come their way. However, the worst impacts, including crop failure and resulting food insecurity are likely to extend for many months. If there is no or only little wet-season rainfall, communities will not have their water supplies replenished until the next wet season at the end of 2016 or the beginning of 2017.



Responding to an official request from the Government of Vanuatu, the World Bank and the GFDRR supported the GoV **TC Pam Post-Disaster Needs Assessment** (PDNA). The objectives of the PDNA were to (1) assess the socio-economic impact of TC Pam, (2) identify priority needs for critical economic sectors, (3) identify potential financing gaps and needs, and (4) review current disaster risk management capacity and propose a strategy to reduce risks and make all recovery disaster-resilient.

The PDNA estimates the total **economic impact** of TC Pam at approximately VT 48.6 billion (USD 449.4 million). This represents 64.1% of GDP (Figure 5). While the destruction of physical assets occurred in March 2015, the negative impact of the disaster on overall economic conditions will be felt for several years to come.

	Disaster Effects (VT millions)			Share of Disaster Effects (%)		Lost Personal Income
	Damage	Losses	Total	Private	Public	VT millions
Productive Sectors	8,526	10,403	18,928	98	2	1,607
Agriculture	1,421	4,641	6,062	93	7	227
Commerce and Industry	1,196	2,152	3,348	100	0	487
Tourism	5,908	3,610	9,518	100	0	983
Social Sectors	14,339	630	14,969	67	33	–
Housing (Private)	9,452	440	9,893	100	0	–
Health	870	107	977	1	99	–
Education	3,908	79	3,987	0	100	–
Culture	109	3	112	100	0	–
Infrastructure Sectors	6,403	2,926	9,329	51	49	–
Transport	3,017	2,137	5,155	43	57	–
Public Buildings	532	12	544	0	100	–
Water	414	284	697	63	37	–
Energy	179	106	285	100	0	–
Communication	2,261	387	2,648	67	33	–
Cross-Cutting Sector	0	5,328	5,328	0	100	–
Environment	0	5,328	5,328	0	100	–
Grand Total	29,268	19,286	48,554	69	31	1,607

Figure 4: Summary of disaster effects by sector.

Because of data limitations, however, it is likely that these figures underestimate the total impact. In spite of highly commendable efforts by the PDNA team to collect data during the short timeframe of this assessment, the team faced difficulties. In many instances, data was either not available or had not yet been processed. Accordingly, this assessment is not a full assessment of total damage and loss, but is based on the best information available at the time of writing (source: PDNA 2015). Exchange rate: USD 1 million = approximately VT 108 million/VT 108.04 = USD 1.



Figure 5: Effects of TC Pam in terms of damage costs and losses across sectors (Data source: PDNA 2015)

The lack of mechanisms for appropriately assessing **non-economic and indirect impacts** entails an economically dominated view of the effects. This might lead to an underestimation of the disaster’s impact on livelihoods. Even though L&D affecting people living at subsistence level might be comparably low in monetary terms, events like TC Pam can destroy their resource basis for many years to come. Furthermore, calculations of economic L&D cannot account for damage and loss of culturally important assets. The cyclone affected communities and individuals in a number of ways. The **human and social impacts** concern employment and livelihood-generating abilities, housing, personal safety, public health and sanitation, household efficiency and food production. The cyclone seriously impacted on the livelihoods of over 40,000 households, resulting in losses of around VT 1.6 billion in personal income (Figure 5). It also extensively damaged or destroyed community infrastructure, disrupted daily life and – at a time when incomes had been lost – required extra expenditure to pay for repairs or replacement.

In spite of enormous logistical constraints, the initial response phase saw **significant achievements**. The government commissioned a three-month period of value-added tax and duty exemptions for hardware and agricultural supplies to support reconstruction efforts. Additionally, the government spent VT 242.3 million of its VT 248 million Emergency Relief Fund in supporting the immediate humanitarian response. This supplementary budget was financed in part through the PCRAFI payout of VT 202.0 million. The rest was sourced from within the GoV’s recurrent budget.

The Government of Vanuatu appealed for **international support** to respond to the crisis. Assistance pledges from bilateral and multilateral development partners topped USD 20 million in the first week after the disaster. The swift humanitarian response included in-kind assistance and pledges of financial aid totalling USD 50 million. Particularly large amounts of support were received from Australia, the United Kingdom, China, New Zealand, the Netherlands and the United States. The UN Central Emergency Response Fund spent USD 5 million through various agencies and ADB provided USD 1 million from its Asia Pacific Disaster Response Fund (*IMF 2015 Country Report*). In immediate response to devastation caused by TC Pam, the EC made available an initial EUR 1 million to help with emergency relief efforts (*GoV 2015*).

Building on earlier collaboration in disaster preparedness, **FAO and SPC/GIZ CCCPIR** provided inputs for developing a strategy for the post-humanitarian phase, which was designed to support the Government in rebuilding the agricultural sector. The German Federal Foreign Office (AA) commissioned GIZ to implement a project that provided food assistance for the population most affected by TC Pam. This emergency food aid, albeit small in volume, was among the first on the ground. GIZ also chaired Vanuatu’s national Food Security and Agriculture Cluster, which was responsible for planning and distributing emergency food relief to over 200,000 people. In addition, GIZ provided 1000L water tanks for 22 communities and 6 schools just before the El Nino set in in late 2015.

General **budget support** from the European Union totalling VT 359.6 million, and a VT 202 million insurance payout from the World Bank was released into the recurrent budget for financing recovery-related expenditure. Australia provided an additional AUD 35 million for long-term recovery. On 5 June 2015, the Executive Board of the **International Monetary Fund (IMF)** approved a disbursement of the equivalent of SDR 8.5 million (about USD 11.9 million or 50% of the quota) under the Rapid Credit Facility (RCF) and a purchase to the equivalent of SDR 8.5 million under the Rapid Financing Instrument (RFI).

Support not only came from the wider international donor community but also from neighbouring Pacific Island Countries such as Fiji, Papua New Guinea, the Solomon Islands and Tonga. At **regional level**, partners, governments and agencies responded promptly to requests for assistance. Previous assistance provided a network of relationships that could be used during the response phase. Regional actors understood the operational constraints of working across many isolated islands and the need to respect *kastom* and traditional response mechanisms. The Pacific Humanitarian Team (PHT), which enables buy-in from local counterparts, is regarded as a model for how Pacific Island Governments can access additional support from within the region in case of emergency (United Nations Resident Coordinator of the UN multi-country office in Fiji).

Insights from the community perspective – a visit to Nguna Island

On Nguna Island, TC Pam caused massive destruction. The devastating effects of TC Pam have left their mark on all aspects of community life. Houses and gardens, some of which represent the owners' life savings, were destroyed in a single day. Given the destruction of homes, gardens, reefs and the additional threats posed by the current El Niño, there are serious concerns about the water and food situation on this small volcanic island.

People in Taloa, a small coastal village, and in the hillside community of Malaliu, had been aware that a category 5 cyclone was approaching several days before it hit. Most of the younger people, however, had no idea what that actually meant as they had only ever been exposed to smaller cyclones. They were caught by surprise and scared by the destructive power of the cyclone. They realised that more precautionary measures would have been necessary to secure houses and crops.

Nevertheless, the **time-tested preparations** put in place following a long history of cyclones ensured that villagers on Nguna Island stayed safe during the cyclone. People had cut or trimmed leaves and branches of food crops in their gardens, removed rain water down pipes, and placed sand bags on the roofs to protect them against the gales. Once the cyclone hit, people gathered in predefined shelters such as the local church building or the *nakamal*, a traditional meeting place that has survived countless cyclones for more than a century.

A number of houses were left destroyed in Taloa village. The owners explained that they will take a long time, even years, to completely rebuild. They do not receive any compensation or financial support for reconstruction.

The situation in Malaliu, half an hour's walk uphill from Taloa, provided an insight into the unfolding crisis, worsened by having two extreme climatic phenomena happening in quick succession. The unfolding **El Niño** event acts as a multiplier for existing development problems and impacts caused by TC Pam, especially with regard to water and food security in rural areas. While TC Pam destroyed most crops and harvests, El Niño brought dry weather conditions and made it difficult to restore the gardens, which are essential for food production. Reduced rainfall has not only been a disaster for agriculture, it has also quickly become a major concern for households. Pam had already seriously affected rainwater harvest. Now, flows from natural water sources have diminished or started to dry out.

Water scarcity affects the community in many ways. School hours have been shortened, and the rebuilding of homes has been delayed. The shortage also affects the production of food seedlings and plants for restoration and future replanting. Relations with neighbouring communities that still have natural water sources can sometimes become difficult. On the other hand, people are becoming creative in dealing with the water situation. A mobile desalination plant provided by a local entrepreneur is helping to improve the situation and a truck has been hired to transport water containers to the village.

Recovery planning

On 16 June 2015, the Prime Minister's Office launched a two-year **National Recovery and Economic Strengthening Programme Plan**. This document identified three areas of critical recovery needs: (1) restore and develop essential social services (2) repair and improve infrastructure and (3) promote and support Ni-Vanuatu livelihoods and ways of life. The plan is based on an initial round of rapid needs assessments and dialogues with the population that government officials and politicians conducted throughout relief efforts.

According to the PDNA, the primary objective of the recovery strategy is to enable all people to improve their overall wellbeing by restoring their physical assets, live-

lihoods, and socio-cultural and economic status. As the private sector accounts for 69% of total disaster effects, the recovery and reconstruction strategy needs to address both private and public sectors in order to ensure an effective overall recovery. Total recovery needs are estimated at VT 34 billion (USD 316 million).

Medium to long-term **reconstruction** needs in the public sector – including health, education, transport, environment, water supply, sanitation, and public buildings – go beyond mere rebuilding. Destroyed assets also need to be modernised in accordance with improved standards, and disaster-resilient norms need to be established so as to reduce the risk of potential future disasters.

Communities can survive for a few weeks on preserved food, harvested either directly before a cyclone hits or as root crops left in the ground until they dry out. During the first three months, they received some rations of food aid from the government. With support from the CCCPIR project, the community installed a community garden to produce a variety of vegetables that would allow them to survive the upcoming drought period. The community garden not only revived

a traditional yet mostly forgotten form of joint community action. It also incorporated a technical innovation that used drip irrigation, enabling food production under dry conditions.

Overall, it seems that much **traditional knowledge** and ways of coping with cyclones are slowly being lost as people abandon their traditional practices such as using resistant food crops or traditional food preservation.



Figure 6: The *nakamal* in Taloa, made from local materials, appears solid and safe. It provided shelter mainly to young men from the community and suffered only minor damage during the cyclone.

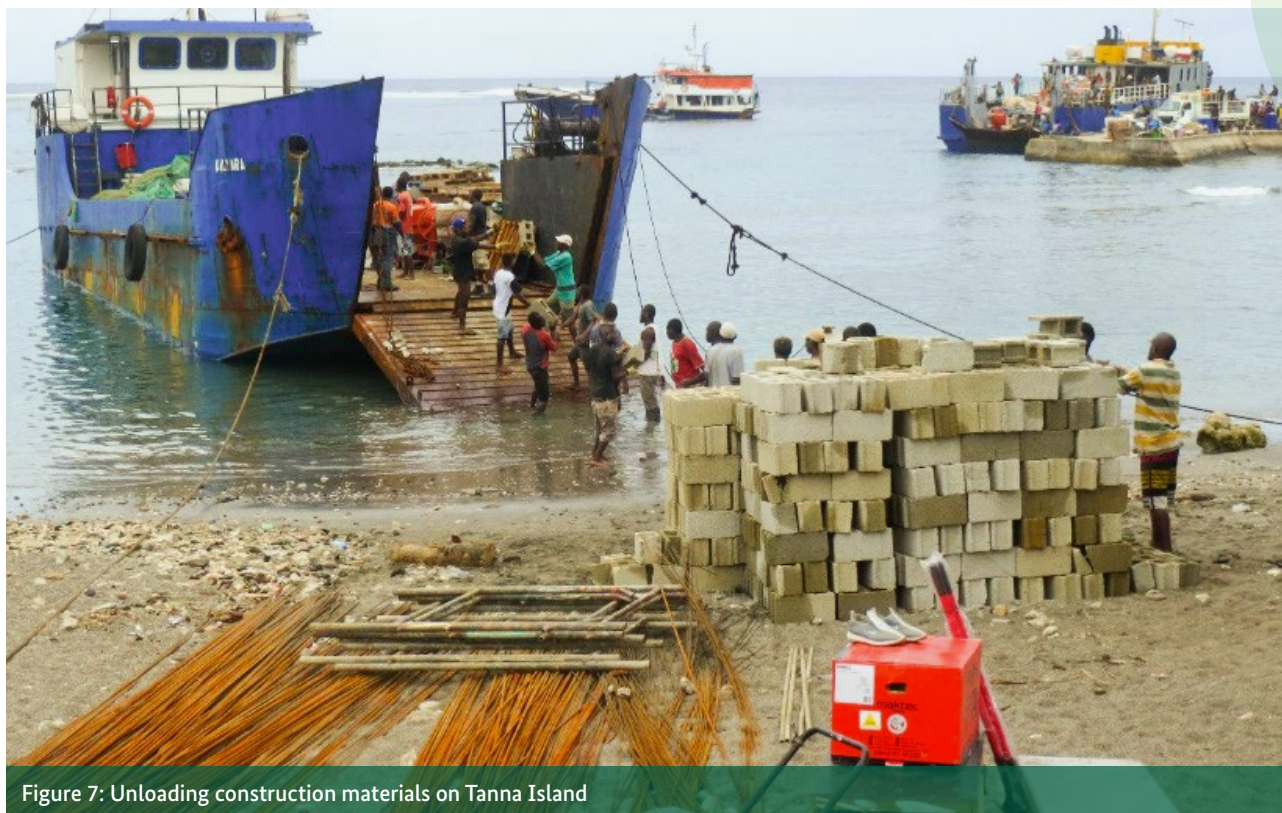


Figure 7: Unloading construction materials on Tanna Island

For the private productive sectors (commerce and industry, tourism and agriculture), the recovery strategy will focus primarily on providing access to a line of financing or production inputs so private-sector entities and individuals can recommence their productive activities. A low-cost debt facility has been proposed that could be made available to banks to on-lend for reconstruction.

As approximately 80% of Vanuatu's population relies on **agriculture** for livelihood and food and nutrition security, and at least 71% of the rural population derives some income from agricultural activities, agricultural recovery is essential. Recovery and rehabilitation efforts are planned to revive economic activity and to strengthen the sector's resilience to future shocks. The Risk and Resilience Unit, which is part of the Ministry of Agriculture, Livestock, Forestry, Fisheries and Biosecurity (MALFFB), has prepared a strategy for the post-humanitarian phase whereby, from 2015 to 2017, all stakeholders will work together to rebuild the food and agriculture sector, including both subsistence and commercial farmers.

According to the PDNA, recovery planning in the housing sector aims to supplement existing resilience and coping systems of the Ni-Vanuatu people and assist them in 'building back better' (BBB), specifically by distributing building materials and offering technical assistance to make self-repaired houses more durable and weatherproof.

Vulnerable groups at risk of sliding into poverty or deeper poverty require special consideration. Given their limited access to resources, they will most likely not be able to recover their former standard of living by the end of this year. Such groups are to be targeted with two-year waivers of fees (such as school fees, medical fees, taxes, etc.). They will also be offered micro-grants, technical assistance and training to restore income sources or find new employment.

TC Pam has been recognised as a valuable **learning opportunity**. The current situation in Vanuatu shows how two consecutive extreme climate events can lead to a severe crisis in a society previously considered quite resilient. The ongoing recovery process is a dynamic one, and its progress varies significantly between different sectors and across Vanuatu society.

A number of assessments and workshops have analysed experiences and identified lessons learned. All these initiatives and workshops focus on lessons learned during the response phase, and only very few recommendations address issues beyond this particular event and beyond the humanitarian response. Consideration should be given to initiating a more in-depth discussion on lessons learned, with the aim of shaping future CRM in Vanuatu and the region.

5.

Lessons learned

The following chapter on lessons learned synthesises the findings of the mission team and the results of consultations with key national, regional and global actors, including: The PDNA; a national workshop to identify lessons learned facilitated by Vanuatu's National Disaster Management Office (NDMO) with support from the EU, a lessons learned workshop organised by the Risk and Resilience Unit (RRU) of the Ministry of Agriculture, Livestock, Forestry, Fisheries and Biosecurity; and a report on lessons learned from the PCRAFI Insurance Pilot, jointly prepared by the Japanese International Cooperation Agency (JICA) and the GFDRR–DRFI programme.

Emergency preparedness and response

The experience of TC Pam revealed the need to improve **emergency preparedness** in Vanuatu for large-scale disasters involving international support and the UN system. Emergency preparedness refers to the knowledge and capacity of governments, recovery organisations, communities and individuals to anticipate, respond to and recover from disasters and emergency situations. It requires long-term and comprehensive DRR engagement.

The events surrounding TC Pam confirmed that Vanuatu is generally very well prepared for cyclones. This is due to traditional knowledge, the establishment of Community Disaster and Climate Change Committees (CDCCC) at village level and the effectiveness of Vanuatu's cyclone



Figure 8: The impressive preparedness of the affected communities during TC Pam was due to the knowledge and capacities of individuals and communities at local level

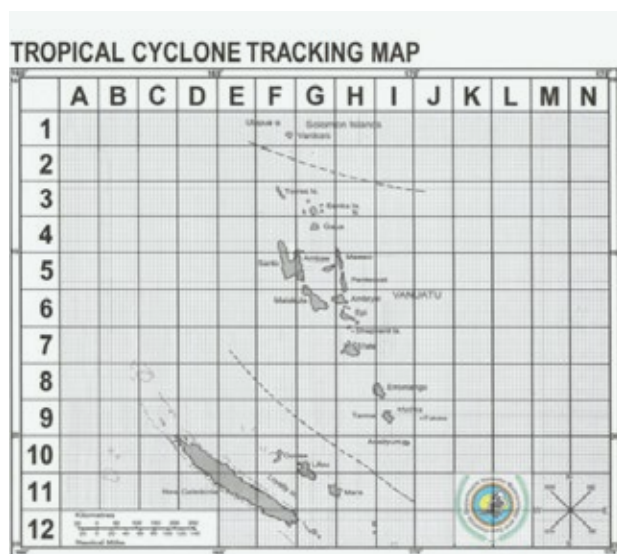


Figure 9: Cyclone tracking map (Vanuatu Meteorological Services 2016)

early warning system. Mechanisms exist for preparing for natural disasters. The NDMO's National Cyclone Support Plan provides cyclone guidelines and information to all agencies on what needs to be done in the case of disaster emergency.

Such mechanisms and knowledge did not, however, always lead to appropriate action. With the vast majority of houses suffering damage, TC Pam also revealed the island's limited capacity to mitigate the impacts of cyclones. Most people did not fully understand what a category 5 cyclone actually was. Communication in simple, non-technical language is needed for people to rapidly understand messages and take appropriate action. In addition, the vast majority of houses were not built to withstand winds on this scale. Interestingly, houses constructed with traditional materials fared the worst (Barber 2015).

The current situation in Vanuatu furthermore shows how two consecutive extreme climate events can lead to a severe crisis in a society that was considered quite resilient. **El Niño** acts as a multiplier for existing development problems already aggravated by the impacts of TC Pam, especially with regard to water and food security in rural areas. The National Disaster Management Office coordinates the national response with the help of clusters and humanitarian partners. Rapid assessments of areas affected by El Niño will have fed into the government's 12-month response plan. Provincial Emergency Operation Centres (EOCs) have been put in place to monitor the situation and inform the NDMO in Port Vila.

While response activities were quick and effective, it became obvious that the scale of the **international response** overwhelmed national capacities to absorb such assistance. With Vanuatu facing its first truly national emergency, it was initially unclear how international response mechanisms could be mobilised and utilised. National actors were unaccustomed to processes associated with raising international humanitarian funds. International (UN) support with these key functions was critical for rapid action. The international response thus not only introduced new actors but also a standard package of UN tools and services.

National structures were not set up for the large influx of international aid and all the associated tasks of coordination and information management. The many agencies involved in national coordination, decision-making and response included the Prime Minister's Office, the Council of Ministers, the Development Committee of Officials, donors, the National Disaster Committee, the Vanuatu Humanitarian Team (VHT), government ministries (particularly Foreign Affairs), municipal councils, Provincial Disaster Committees, Community Disaster and Climate Change Committees, national clusters and regional and international agencies. All of them worked through the NDMO, which is seriously understaffed and under-resourced. Experiences during the response phase demonstrated the need to implement better coordination approaches and to improve consistency among key humanitarian and government agencies. This has sparked discussion about the role of the VHT and the National Cluster System.

In 2013, the NDMO and the VHT adopted the **National Cluster System** in order to increase the effectiveness of emergency and disaster response. While the cluster system provided an effective and powerful national planning mechanism, there still seems to be some potential for improving effectiveness, especially in terms of communication between cluster leads and assessment standardisation and in terms of avoiding duplication of efforts. The national report on lessons learned recommends that a high-level decision-making group, including government and non-government members determine how the cluster system develops and functions in future. It was also recommended that clear terms of reference and standard operating procedures for clusters should be devised.

An assessment of VHT performance during the response phase concluded that the roles and responsibilities of the VHT need to be more clearly defined, and that operating procedures for accreditation, auditing and financial reporting need to be put in place to avoid duplication of efforts. In addition to Vanuatu Humanitarian Team (VHT) members, national NGOs, volunteers and the private sector, a number of international NGOs operated in Vanuatu for the first time. Some attempted to go through the proper channels and approached the government, the clusters or the VHT to seek advice on requirements, while others did not.

The rapid influx of new actors not only posed a significant coordination challenge but also highlighted the importance of **cultural sensitivity**. Newcomers' limited understanding of the Melanesian context and culture led to some resentment during the response phase. This was an issue within NGOs, UN agencies, coordination forums, and the government's own National Emergency Operation Centre (NEOC).

Given the scale of the disaster and the challenges of coordinating numerous international, regional and national actors for a rapid response, the Government of Vanuatu struggled to maintain **ownership** and to ensure that processes were in line with government ties. A number of the recommendations emerging from discussions on lessons learned address the issue of safeguarding government sovereignty in such emergencies. In the future, there should be a disciplined approach to relief and personnel provision, respecting the needs of the government and following established protocols and procedures. Furthermore, donors are expected to comply with the auditing and reporting mechanisms of the Ministry of Finance and the Prime Minister's Office (PMO). At the same time, analysts recognised the need to identify gaps in NDMO and other key GoV agencies so as to reduce future dependence on the international community.

Re-building

Although the population immediately embarked on **self-recovery**, applying the 'build back better' principle still seems to be a challenge. Houses are mostly being rebuilt in the same way, recreating vulnerabilities that existed prior to TC Pam. This is due to a lack of proper materials, building know-how and financial resources. Immediate reconstruction support for private houses was mainly provided in the form of tool kits and information or training on disaster-resistant building techniques.

A number of projects to strengthen housing and settlement community resilience with a total budget of USD 5.8 million have been submitted to the GoV. These will be implemented by 2018 and benefit 12,240 households (Shelter Cluster Vanuatu 2015). As of October 2015, the affected population had not seen any financial recovery support from the government. The delay in project approval and implementation seems to be mainly due to the quality of the proposals that have been submitted and the government's limited structural capacities, which are still under strain following TC Pam.

Disaster financing

Vanuatu's ex-ante disaster financing instruments include disaster provision, sovereign catastrophe risk insurance and external debt. Nevertheless, the GoV relied mainly on a post-disaster financing mechanism for the response, recovery and reconstruction phase, with donor assistance representing the most important source of funding.

The GoV and the UN issued an appeal for USD 29.9 million in March 2015 to support ongoing relief efforts. The **flash appeal** raised the funds that were critically needed for immediate and post-disaster rehabilitation. The Humanitarian Action Plan (HAP) builds on and replaces the flash appeal and is based on the results of the Second-Phase Harmonised Needs Assessment. According to the latest UNOCHA update, only 57% (or USD 21.3 million) of the total appeal for USD 37.7 million had been funded by the end of October 2015 (*UNOCHA 2015*).

During the emergency response phase, the GoV received **bilateral support** from a number of traditional and non-traditional partner countries. Funds were also raised and implemented by numerous NGOs, which at times bypassed the government system and are therefore not accounted for in government records.

Disaster risks	Disaster risk financing instruments	Amount of funds available
High-risk layer (E.G. Major earthquake, major tropical cyclone)	Disaster risk insurance	Catastrophe risk insurance coverage NZ\$3.4m (US\$2.8m)
Medium-risk layer (E.G. Floods, small earthquakes)	Contingent credit	
Low-risk layer (E.G. Localized flood, landslides)	Contingency budget, national reserves, annual budget allocation	Contingency budget: NZ\$ 1.7 m (US\$ 1.4 m) ERTF: NZ\$ 0.5 m (US\$ 0.4 m)

Figure 10: Amount of ex-ante funds available for immediate response in Vanuatu (*World Bank 2015*)

External credits were made available by multilateral institutions such as the IMF. This was intended to help Vanuatu cope with its immediate balance of payments needs and to catalyse critical donor support for recovery.

The GoV established a **trust fund** for the recovery phase, which, until then, had been financed mainly through contributions from Australia and New Zealand. According to the PMO, the gap between available funds and actual needs is immense, and few of the pledges made by the international community have so far materialised.

Vanuatu's **ex-ante financing instruments** in its disaster risk management strategies include disaster provision, sovereign catastrophe risk insurance and external debt. Vanuatu has a maximum of USD 12.5 million available in DRFI instruments.

Following a declared state of emergency or a financial emergency, the Public Finance and Economic Management Act allows for **supplementary allocation** of up to 1.5% of total appropriation for that fiscal year. In 2010, the Government of Vanuatu established a **contingency budget** provision of USD 265,000 for natural and financial disasters. This continues to be appropriated annually, but does not accrue and becomes expendable at the end of the financial year (*World Bank 2015*). More recently, Vanuatu has purchased insurance coverage from the Pacific Catastrophe Risk Insurance Pilot for cyclone and earthquake perils.

According to the PMO, the gap between funds available for recovery and actual needs is, however, immense, and few pledges made by the international community have materialised. According to the PDNA, most loss and damage caused by TC Pam affected the private sector and individual ownership. In the absence of specific support programmes, individual homeowners bear all costs for the reconstruction of private housing. This represents a heavy burden given that direct insurance coverage is very low in Vanuatu.

PCRAFI insurance is a tool to support immediate funding needs during the emergency response phase. The relatively fast pay-out of USD 1.9 million provided a rapid cash injection to the national budget for food aid. The pay-out sum was considered quite low in relation to the magnitude of the event. GoV officials stressed the importance of discussing case experience from TC Pam with the multilateral donors involved in the insurance scheme. Overall, however, the scheme is considered useful, and recommendations were made to increase insurance coverage in the future to ensure more liquidity in the first few weeks after a disaster.

The report on lessons learned from the PCRAFI Catastrophe Risk Insurance Pilot recognises that catastrophe risk insurance cannot, however, cover all disaster losses and should be combined with other financial solutions. Risk pooling is seen as highly beneficial as it creates a critical mass of business, reduces operating costs and creates a more stable and less capital-intensive portfolio. This is less costly to reinsure, leading to lower insurance premiums and/or higher insurance coverage.

Beyond the current crisis

In Vanuatu, the relevant actors simultaneously have to deal with the impacts of **TC Pam** and the ongoing **El Niño**. Their attention is currently focused on **emergency preparedness** and **response** to both events. Reflections on the experience of TC Pam that emerged from the lessons learned workshops and studies also focus mainly on preparedness and the response phase.

Analysing problems and identifying solutions after a catastrophic event is a crucial part of disaster prevention. There is, however, more that can be done. Given the high exposure of Vanuatu to a multitude of hazards and threats, the next disaster might be just around the corner and quite possibly display a range of unexpected features. Against this backdrop, some **long-term concerns** emerge.

The **NGO DRM community** in Vanuatu appears to be strongly influenced by the humanitarian perspective. VHT coordination and the cluster system are heavily geared towards emergency preparedness and response. The cluster system is traditionally used as temporary mechanism to ensure coordination and facilitate emergency response during an ongoing event. While such a mode of operation encourages more intensive work on preparedness issues and better integration of preparedness into disaster response mechanisms, it does not address the remaining aspects of DRM, namely the issues of risk reduction through prevention and mitigation and that of reconstruction. While there were no doubts as to the significance and performance of the VHT and the clusters during the response phase, some concerns have been raised as to whether this framework is duplicating structures that should actually be embedded within the government system.

Although recognised as major threats in the context of climate change, **slow-onset phenomena** such as sea-level rise and changes in ocean temperature do not yet feature prominently in the implementation of adaptation programmes. This might be due to the fact that so far, the effects of these trends on the population are neither fully understood nor visible. This could change once associated future losses and damages have been assessed better and options for concrete action tested for broader application. Developing strategies to deal with slow-onset phenomena is an important way to prevent displacement and migration caused by loss of livelihoods and habitable land.

Climate change currently dominates the agenda in Vanuatu. However, this strong focus on climatic hazards and adaptation to climate change carries a risk that the threats from **other hazards** become somewhat marginalised. This is especially dangerous in the case of low-probability but high-impact events such as tsunamis. The Ni-Vanuatu community, which is very resilient against more regular events such as cyclones and droughts, might be less resilient in the face of rarer events.

Disaster risk management

According to the PDNA, the key areas that require strengthening are (1) the early warning systems (EWS), (2) post-disaster assessment, communications and information management capacity, and (3) disaster management capacities and institutions. The PDNA concluded that the experience of TC Pam has highlighted the need for a complete review of DRM arrangements for disaster preparedness, response and early warning across all government bodies, the private sector, and communities.

The **lessons learned workshops** and studies have generally confirmed this need. First, this would require an examination of the relationships between institutions, actors and mechanisms at national level and their relationships with regional institutions and the international humanitarian and development community. Secondly, such a review would have to address national disaster management arrangements, particularly in terms of decentralisation. The role of the NDMO, which currently is a severely understaffed and under-resourced agency, should be reviewed, and the office equipped as necessary. At provincial level, disaster management still needs to be fully integrated into local government structures and institutions.

The process of setting up **CDCCC** and building capacity needs to be rolled out to all communities, and capacities need to be strengthened in communities where CDCs exist. In some areas, CDCCC were created directly after TC Pam to support emergency response processes. These might not yet recognise their potential role in strengthening community preparedness and addressing climate change adaptation. The momentum generated by TC Pam and El Niño provides a good opportunity to strengthen this mechanism.

In Vanuatu, **NGO support** for DRR and CCA is key in getting disaster risk reduction and climate change adaptation programmes underway and putting community-level activities in place. NGOs need to maintain close links with the NDMO in order to be aligned with national strategies and policies.

‘No more piloting, please’ – this was another strong statement from government officials, which reflects the limited transferability and scalability of approaches successfully developed as part of international cooperation. Future **pilots** should follow a clear strategy and provide access to resources for subsequent upscaling.

TC Pam highlighted the benefits of a well-established **early warning mechanism**. Vanuatu’s different warning systems for different hazards still mainly operate independently. The development of local procedures and response plans, and capacity development at community level should in future be managed using an integrated and multi-hazard approach.

Integration and mainstreaming of DRR and CCA

Although Vanuatu is a pioneer in integrating the governance and implementation of climate change and disaster risk reduction, the reorganisation process with regard to **mainstreaming** DRR and CCA is not yet over. Lessons learned from TC Pam suggest that the current set-up should be reassessed, with the intention of avoiding parallel structures, strengthening existing mechanisms in the governmental system and further clarifying roles and responsibilities. Such reassessment should recognise the potential of the current set-up in terms of coordination and information-sharing capacity. TC Pam provides a good opportunity to advance this process. It may also be worth considering a more comprehensive approach to **climate risk management**, thereby addressing Vanuatu’s underlying vulnerabilities.

Climate and disaster risk governance

The **Risk Governance Assessment Report (RGA)** was initiated at the request of the GoV to strengthen climate and disaster risk governance in Vanuatu. It was designed to critically analyse the NAB structure and simultaneously expand its focus so as to assess the capacities of agencies carrying out CC/DRR activities. The RGA offers a number of recommendations on the NAB, capacity development at national and local level, risk profiling and financing.

Concerns were raised about how to improve risk profiling in Vanuatu as this will be necessary to guide development projects to high-risk areas. This will involve improving not only monitoring capacities but also acquisition and management of climate-related data.

Development partners have significantly increased their contributions to Vanuatu in recent years, both for climate change and disaster risk reduction projects. Much of this funding, however, bypasses government systems, leading to duplication, inefficiencies and a lack of capacity-building. Vanuatu is aiming to gain National Implementation Entity (NIE) accreditation under the adaptation fund, as well as the Green Climate Fund. It expects that it will then be able to increase development funding for climate change programmes and projects, and to encourage development partners to contribute via the government system.

Another output of the RGA was a draft **National Policy on Climate Change and Disaster Risk Reduction (CCDRR Policy)**, which draws on inputs from RGA consultations on governance, risk profiling and climate financing as well as previous initiatives and consultations. The CCDRR Policy now provides strategic orientation to ensure that stakeholders understand and align their activities with Vanuatu’s policy direction. The CCDRR Policy is seen as a step towards strengthening the ability of governance and financial systems to access additional funds.

6.

What needs to be done? Summary and conclusions for [German] Development Cooperation

Looking beyond the current crisis, it has become apparent that Vanuatu's non-governmental disaster risk management (DRM) community operates **mainly from a humanitarian perspective**. The main focus rests on preparedness, disaster response, and adaptation activities, while a **comprehensive approach to DRM and CRM needs to be strengthened**. Although slow-onset phenomena, such as sea level rise and changes in ocean temperature are recognised as major threats, the DRM community is not yet addressing these at a tangible level. As climate change is dominating the agenda, there is a risk that threats from other hazards, such as geohazards become somewhat marginalised. There seems to be agreement on the need to further strengthen DRM in Vanuatu and to review existing DRM arrangements. The gap between national policies and strategies and the capacities to implement these at local level is evident. On the other hand, integration and mainstreaming is making promising progress.

Future challenges are centred on two pillars. For each of these pillars, there are more specific fields of activity that will strengthen capacities in Vanuatu and the region to further reduce climate risks and better cope with loss and damage.

The first pillar involves **more comprehensive assessment** of immediate and long-term climate risks at local, national and regional level in order to further reduce climate-related risks. The results of these assessments should be included in the development plans of governments, sectors and communities. Fields of activity include support for further risk assessments and the ongoing DRM decentralisation process, further integration of disaster risk reduction (DRR) and climate change adaptation (CCA), mainstreaming into economic and sectorial planning, and the integration of early warning processes, especially downstream. In terms of L&D, recommended fields of

activity include the provision of support to further assess and quantify potential and actual impacts. This applies especially to loss and damage caused by slowly progressing climate change, and to non-economic loss and damage. Addressing this need the GCF Readiness Program (2017–2018) implemented by GDC aims to put in place a national vulnerability and risk assessment framework.

The second pillar concerns **financial resources** for the implementation of CCA and DRR activities and disaster financing. Support should be directed to Vanuatu's National Implementing Entities accreditation roadmap and to the establishment of both a national trust fund for climate change and disaster risk reduction and a small grants scheme. DC can also assist in strengthening financial management and governance. In terms of disaster financing, the portfolio of financing tools needs to be improved, and Development Cooperation should explore options for climate change and disaster risk-sharing schemes. This is also relevant at the regional level. DC should consider devising approaches to facilitate the participation of the poor, setting up micro-insurance schemes to protect livelihoods, and supporting monitoring and evaluation of experiences to generate data and insights that will guide further development of insurance tools.

In the case of both pillars, the majority of issues are also reflected in the initial two-year work plan agreed under the Warsaw International Mechanism for Loss and Damage (WIM). The efforts to be undertaken in Vanuatu and the region will therefore not only draw upon work carried out as part of the WIM process but also provide feedback to the WIM based on practical experiences.

Supporting comprehensive CRM in Vanuatu and the region

Lessons learned from TC Pam clearly show the **need for more comprehensive climate risk management**. While solid preparedness helped to keep the number of casualties down and a quick international response helped the authorities to successfully deal with the emergency phase, the experience has highlighted the need for further risk reduction, better financial protection and risk transfer, and faster and more resilient recovery.

While there are numerous initiatives in Vanuatu helping the country to adapt to climate change and strengthen resilience, there is less support for adopting more comprehensive approaches to CRM and for addressing relevant issues such as loss and damage, mainstreaming, financial protection and risk transfer. The integrative nature of comprehensive CRM fits well with current efforts to unify climate change and DRR activities in Vanuatu and the region. It also opens up a more development-oriented perspective by giving greater consideration to the underlying factors of vulnerability, which are often related to unresolved development problems. Economic, fiscal and physical planning policies can all reduce climate risks. To be successful, these policies need to be based on solid risk assessments.

Within the broad spectrum of comprehensive CRM, DC should prioritise support for further **risk assessments** and related capacity development to better understand climate risks. There is already solid understanding at national level of the immediate and long-term climate risks facing Vanuatu. However, while most risk assessments focus on exploring exposure to climate-related hazards, there has been no comprehensive analysis of vulnerabilities. The cultural variety and unique characteristics of the individual communities require solutions based on specific local assessments. GDC's multi-level approach and its presence from local to regional level provide an excellent environment and give GDC a comparative advantage when lending support in this area.

These features of GDC can also be used to support the ongoing **decentralisation of disaster management** in Vanuatu. The impressive preparedness of the affected communities during TC Pam was due to the knowledge and capacities of local people and communities. On the other hand, the impacts of TC Pam were also experienced most acutely at local level. There is a clear gap between national policies and strategies and capacities to implement these at local level. Due to the cultural and environ-

mental diversity of communities, strategies for disaster risk management should be informed by local experience and tailored to specific local circumstances. More specific training and awareness is required across government agencies and the wider system of disaster management.

Vanuatu is leading a regional shift in the way it integrates climate change and disaster risk reduction governance and implementation, which in turn leads to more efficient service delivery and streamlined approaches. The ongoing process of **integrating and mainstreaming DRR and CCA into economic and sectoral planning** is setting an innovative example. SPC-GIZ CCCPIR implemented on behalf of BMZ has promoted these developments over the past few years and gained recognition for its flexible and process-oriented way of supporting national partners. This support should be continued, and the lessons learned from these processes are definitely worth sharing.

Given the impact of a single event such as TC Pam on GDP and the country's growth agenda, it is vital for governments in the region to integrate disaster risk management into economic and fiscal planning. **Integrating risk knowledge into development planning and budgeting** is an urgent requirement for countries with small economies and few institutional capacities. DC should address this particular aspect.

Another more specific process involves integrating the various hazard-specific **early warning** systems in Vanuatu in order to create a multi-hazard system. Initial steps towards this have already been undertaken, but further efforts are needed to develop and implement mechanisms and procedures that link existing early warning services with disaster management institutions and procedures at national and local level. This also applies to the entire downstream process. GDC has a wealth of experience and expertise in this area, not least through the GITEWS project in Indonesia.

Comprehensive CRM and DRR involve a wide variety of roles that require specific skills and appropriate **capacity development** support. Here, German technical cooperation can draw upon a range of relevant training approaches and programmes, and on its experience in horizontal learning processes.

Supporting attempts to address unresolved issues related to Loss and Damage

The current situation in Vanuatu reveals that climate-related loss and damage is a harsh reality, especially for the more vulnerable sectors of society. It also shows that better mechanisms are needed to cope with such loss and damage.

The decision to carry out institutional and process reform is largely political. Vanuatu has long addressed this need within the framework of the UNFCCC, both in its own right and as a member of AOSIS. It continues to promote a mechanism that will help countries to deal appropriately with loss and damage and not leave them at the mercy of donations from the international community. A constructive and differentiated dialogue is needed to build a common understanding of climate-related loss and damage, and to develop instruments that will address loss and damage appropriately. Thinking beyond this, instruments and approaches for dealing with climate change induced loss and damage could also be useful in coping with disasters or geo-physical events.

At a technical level, there are still a number of unresolved issues in Vanuatu and the region. The GoV's national CCDRR Policy proposes conducting further **assessments of potential and actual loss and damage** across the country and linking these to ongoing vulnerability assessment processes. Such assessments will contribute to a better understanding of how loss and damage affect vulnerable sectors of the population and how vulnerable people can benefit from approaches designed to address loss and damage.

Climate-related loss and damage is difficult to quantify. While loss of life and economic damage caused by extreme events can be assessed relatively easily, it is much more difficult to **quantify loss and damage caused by slow-onset climate change and non-economic loss and damage**. Enhanced data and knowledge of non-economic losses will help to identify ways of reducing the risk of non-economic losses and manage risks in accordance with specific regional requirements. Vanuatu intends to focus on identifying and quantifying future loss and damage in priority sectors such as food security, culture and ecosystem services. Such data could form part of a baseline against which to monitor the effectiveness of risk reduction measures, and also provide a benchmark for risk-transfer measures such as social safety nets and insurance instruments.



Figure 11: Mural next to Nambawan Café, Port Vila

As in most countries, the emphasis is still on risk management of extreme events, while the adverse effects of **slow-onset phenomena** do not yet receive sufficient attention. There is still limited understanding of long-term impacts on health, food and water security and ecosystem resilience. Appropriate countermeasures need to be developed based on a better understanding and regular assessments of long-term risks of slow-onset phenomena in urban and rural contexts. The greater uncertainty associated with the long-term nature of slowly evolving risks highlights the need for flexible, iterative approaches that can be built into long-term planning or ecosystem-based management processes, such as integrated coastal zone management or whole island approaches.

Although not yet commonly discussed in Vanuatu, **climate-induced migration** is an urgent topic in some Pacific Island Countries and Territories (PICTs). We need better understanding of how climate change impacts affect patterns of migration, displacement and human mobility, and of how combined approaches can help to reduce negative climate-induced impacts, improve development prospects and ensure the right to new land in safe locations for all those forced to migrate.

In this context, the Global Programme could play a role in supporting the development of appropriate methods and tools as part of its pilot activities, and in promoting cooperation with ongoing DC programmes in the region. It could also ensure that activities aimed at addressing these issues comply with the work plan of the Executive Committee (EXCOM) of the WIM.

Supporting adequate resourcing of climate change adaptation and disaster risk reduction activities

Vanuatu needs to further adapt to changing climatic conditions and to address underlying vulnerabilities such as rural water supply and urban development. In the new national CCDRR Policy, the GoV expresses the need for support from development partners and donors, and for commitment from all levels of government and stakeholders to provide funding allocations. Furthermore, the GoV aims to improve its systems of governance and financial management so as to ensure that development and resilience-building needs will be met more effectively. In this regard, DC should consider supporting the GoV by:

- endorsing **Vanuatu's National Implementing Entities accreditation roadmap** so that the country can achieve accreditation under the Adaptation Fund and Green Climate Fund and thereby access international climate financing;
- establishing a **national trust fund for climate change and disaster risk reduction** and a small grants scheme that will channel funding to approved community-based organizations and individuals for adaptation and disaster risk reduction projects;
- strengthening **national systems of financial management and governance** to make effective use of available funding, and ensuring that financial accountability mechanisms are in place and operate effectively, including transparency of decision-making in allocating funding (important for assuring development partners and Vanuatu communities that available funding is used cost-effectively).

Many active funding or donor organizations operate in Vanuatu and the southwest Pacific region. Each organisation applies its own terminology and approach to project management, accountability, reporting, and so on. Most of these requirements are considered inflexible and a drain on resources and expertise. As external funding structures are complex and recipient governments find it almost impossible to simultaneously meet the different requirements of multiple donors, there is need for better donor harmonisation.

The particular **socio-economic circumstances** of Vanuatu should be taken into consideration when determining modes of delivery of DC. This study recommends a complementary approach, matching technical cooper-

ation with funding mechanisms so as to ensure optimisation of the benefits of newly developed capacities and technological innovations and country-wide applicability. Experienced development practitioners confirm this need for a full-scale implementation programme for CCA and DRR rather than seemingly endless pilot and investigative studies into new approaches (*Nalau et al 2015*).

Supporting new approaches to disaster financing

TC Pam and the secondary effects of El Niño are felt most by the **poor** and the **vulnerable**. Investments in DRR therefore need to be targeted to this group. Budgeting for disaster risk and including disaster risk management strategies in fiscal policies are appropriate ways of ensuring that funds are immediately available for relief efforts and for medium and long-term recovery measures. It is expected that expanding insurance coverage against climate-related damage in developing countries will be an important response to growing risks.

The GoV remains interested in exploring options for climate change and disaster insurance or risk-sharing schemes. This issue is relevant for the whole region. Given the regional experience with the PCRAFI initiative, DC could help to address unresolved issues regarding catastrophe insurance in the region. In particular, it could assist in:

- developing models to promote the **participation** of poor people and communities that rely on subsistence economies and predominantly non-monetary transactions, as these groups cannot usually afford to pay premiums and are an unattractive target for the insurance industry;
- exploring further approaches to **micro-insurance** that can protect the livelihood of low-income people against extreme weather events. Here, experiences from the African Risk Capacity (ARC), the Caribbean Catastrophe Risk Insurance Facility (CCRIF) and other initiatives such as the Livelihood Protection Policy (LPP) could provide useful input;
- supporting the **monitoring** and **evaluation** of experiences so as to generate data and highlight the lessons learned for future development of insurance tools, giving special consideration to the benefits for the poor and vulnerable population and to the sustainability of such schemes when initial donor funding runs out and climate-related damage increases.

Climate insurance alone, however, cannot be a sufficient response to loss and damage. Insurance solutions reach their limits when damages are no longer insurable. This includes unavoidable losses such as those due to rising sea-levels. Such unavoidable losses require other compensatory instruments.

The portfolio of financing tools depends very much on the risk layers to be addressed. Such tools could include a contingent credit facility, which is an ex-ante agreement that guarantees credit for disaster recovery and reconstruction. This makes it easier to manage and coordinate the mobilisation and allocation of resources. Another tool is (multi-year) reserves, which are useful in covering frequent but small-scale natural disasters.

Summary of proposed areas for cooperation and fields of activity

Pillar 1: Reducing climate-related risks based on a more comprehensive assessment of immediate and long-term climate risks at local, national and regional level, ensuring the inclusion of results in the development plans of governments, sectors and communities.

Supporting comprehensive CRM in Vanuatu and the region

Fields of activity	Time horizon		
	Short	Medium	Long
Support further risk assessments to achieve a better understanding of climate risks through capacity development	✓	✓	✓
Support the ongoing decentralisation of disaster management in Vanuatu	✓	✓	
Support the ongoing process of integrating and mainstreaming DRR and CCA into economic and sectoral planning	✓	✓	
Support the integration of risk knowledge into development planning and budgeting		✓	
Support the further integration of the various hazard-specific early warning systems in Vanuatu into a multi-hazard system, focusing in particular on the downstream process	✓	✓	

Supporting attempts to address unresolved issues related to loss and damage

Fields of activity	Time horizon		
	Short	Medium	Long
Support further assessments of potential and actual loss and damage across the country, linked to ongoing vulnerability assessment processes	✓	✓	
Support the assessment of loss and damage caused by slow-onset climate change and of non-economic loss and damage		✓	✓
Support better understanding of the long-term impacts of slow-onset phenomena on health, food and water security, and ecosystem resilience		✓	✓
Support better understanding of climate-induced migration and determine what type of approaches could help to address these issues appropriately	✓	✓	✓

Pillar 2: Ensuring adequate financial resources for activities related to climate change adaptation and disaster risk reduction, and for disaster financing.

Supporting adequate resourcing of climate change adaptation and disaster risk reduction activities

Fields of activity	Time horizon		
	Short	Medium	Long
Support Vanuatu's National Implementing Entities accreditation roadmap	✓		
Support the establishment of a national trust fund for climate change and disaster risk reduction and a small grants scheme	✓	✓	
Support the strengthening of financial management and governance to make effective use of available funding and ensure accountability	✓	✓	
Consider Vanuatu's particular circumstances when determining the modes of delivery of DC	✓	✓	✓

Supporting new approaches to disaster financing

Fields of activity	Time horizon		
	Short	Medium	Long
Support the development of direct insurance models to facilitate the participation of poor people and communities with subsistence economies	✓	✓	
Support the exploration of further approaches to micro-insurance that will protect the livelihood of low-income people against extreme weather events	✓	✓	
Support the monitoring and evaluation of experiences to generate data and highlight the lessons learned for future development of insurance tools		✓	✓
Support the further development of a portfolio of disaster financing tools in Vanuatu and the region	✓	✓	

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