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Comparative Analysis of Disaster Risk Reduction and Management in Dominica and Vanuatu

Lessons for Small States



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Abbreviations and Acronyms

ADB	Asian Development Bank
CCRIF	Caribbean Catastrophe Risk Insurance Facility
CDEMA	Caribbean Disaster Emergency Management Agency
CSO	civil society organisation
ECCU	Eastern Caribbean Currency Union
GDP	gross domestic product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
IFI	international financial institution
IFRC	International Federation of the Red Cross and Red Crescent Societies
IMF	International Monetary Fund
JPOC	Joint Planning Operation Centre
NDC	National Disaster Committee
NDMO	National Disaster Management Office
NEPO	National Emergency Planning Organisation
NGO	non-governmental organisation
OCHA	Office for the Coordination of Humanitarian Affairs
ODA	Overseas development assistance
ODM	Office of Disaster Management
PCRAFI	Pacific Catastrophe Risk Assessment and Financing Initiative
PFEM	Public Finance and Economic Management
SPC	Pacific Community
UN	United Nations
UNICEF	United Nations Children's Fund
VAT	value-added tax
VHT	Vanuatu Humanitarian Team
VRC	Vanuatu Red Cross
WHO	World Health Organization

Comparative Analysis of Disaster Risk Reduction and Management in Dominica and Vanuatu: Lessons for Small States

by Resina Katafono¹

Abstract

Dominica and Vanuatu characterise the common vulnerabilities that small states face, as well as the diversity that is also typical among small states, making them a good case study for a comparative analysis of their experiences with disaster risk reduction and management, particularly in the cases of Cyclone Pam and Hurricane Erika. The paper finds that, despite both countries historically experiencing frequent and severe episodes of natural disasters, Vanuatu has made more effort to ensure that disaster risk reduction, not just disaster management, is firmly entrenched in its normative frameworks. Cyclone Pam and Hurricane Erika tested both governments' disaster response systems. Both countries reacted in similar ways and had similar challenges, although Vanuatu appeared to be more committed to learning from its experiences. Vanuatu also had a better pre-disaster position than Dominica, as it had significantly lower debt levels and had a wider range of disaster-financing instruments at its disposal. These better

pre-existing conditions meant that Vanuatu was better able to raise finances to meet the total costs of Cyclone Pam. On the other hand, Dominica's pre-existing conditions limited its options and fell far short of meeting the total costs of Hurricane Erika, even though those costs have probably been underestimated. Moreover, to Vanuatu's advantage, bilateral and multilateral donors were more responsive to relief and reconstruction efforts than for Dominica, where the government found it more difficult to secure donor grant funding. Nevertheless, both countries' economies have since rebounded from the impact of the disasters, albeit only to face another spate of disasters in the form of Hurricane Maria, which devastated Dominica, and a volcanic eruption on Vanuatu's Ambae Island in 2017. The main lessons from this comparative analysis reinforces the importance of (i) strong macroeconomic foundations, (ii) mainstreaming and implementation of disaster risk reduction and management strategies and (iii) having in place ex-ante financing arrangements.

1. Introduction

As the impact of climate change increases the frequency and severity of natural disasters, small states are disproportionately affected by these extreme climatic events. In March 2015, Category 5 Cyclone Pam devastated the Pacific island country of Vanuatu, causing widespread damage and loss of life. Later the same year, in the Caribbean, Hurricane Erika left a trail of destruction on the tiny island of Dominica. Two different regions, two different islands, but with similar vulnerability and resilience profiles and a shared history of the impact of disasters. This paper provides a comparative analysis of the experiences of Vanuatu and Dominica with disaster risk reduction and management, particularly in the cases of Cyclone Pam and Hurricane Erika.

There are important lessons to learn from their past experiences, as both countries continue to face major natural disasters even before fully recovering from the previous disaster. In September 2017, Dominica was battered once more, this time by Category 5 Hurricane Maria (CNN 2017), and within a week, across in the Pacific region, Vanuatu had to evacuate 11,000 people (5% of its population) from the threat of volcanic eruption on the island of Ambae (Bevege 2017). Many small states find themselves in similar situations of facing disasters without fully recovering from the previous ones and will, therefore, have a continuous challenge in disaster risk reduction and management.

Disaster risk reduction strategies are concerned with anticipating and reducing the risk related to disasters, while disaster risk management can be thought of as the implementation of disaster risk reduction (UNISDR 2015a). In other words, disaster risk reduction is about understanding risk, mitigating that risk or finding alternatives where mitigation is not feasible, whereas disaster risk management is preparedness for the risk that cannot be mitigated. Historically, the focus was on preparedness and the emergency response to disasters, but it is now widely recognised that it is only by reducing and managing the underlying drivers of risk that the impact of disasters can be reduced (UNISDR 2015a). These underlying drivers of risk are related to a country's socio-economic and governance foundations.

This paper first provides an overview of Dominica's and Vanuatu's national contexts related to the underlying risk factors, including an examination of the countries' vulnerability and resilience to shocks (Section 2). This is followed by a survey of the countries' disaster risk reduction and management frameworks, covering legal, normative and institutional frameworks (Section 3). Section 4 analyses the countries' public financial management of disasters, while Section 5 focuses on the emergency and disaster management experiences with Cyclone Pam and Hurricane Erika. Section 6 summarises the common challenges and lessons learnt, which are useful not just for Dominica and Vanuatu but for other small states as well.

2. National Context

2.1 Overview

Countries in the Caribbean and Pacific region are highly exposed to a range of natural hazards of hydrometeorological origin (such as cyclones, droughts, landslides and floods) and geological origin (including volcanic eruptions, earthquakes and tsunamis) (SPC et al. 2016; CDEMA and CDB 2003). These natural hazards result in social and economic disruption, which affect thousands of people and exacerbate existing development challenges in both regions.

Vanuatu is made up of a group of around 80 islands forming a Y-shaped archipelago, while Dominica consists of only one island. Dominica's cyclone season is from June to November, while Vanuatu's is from November to April. However, both countries have relatively similar climates and vegetation.

Vanuatu, with a population of 270,402, has four times as many people as Dominica, which has a population of 73,543 (Table 1). The majority of Vanuatu's population live in rural areas, while the majority of Dominicans live in urban areas. Both countries have a young population, with those of less than 15 years of age making up over one third of Vanuatu's population (Vanuatu NSO 2009a) and accounting for slightly over one quarter in Dominica (Dominica ODM 2014).

2.2 Socio-economic context

Vanuatu's economy is based primarily on small-scale agriculture, which provides a living for about two thirds of the population (Central Intelligence Agency, 2017). Fishing, offshore financial services and tourism are the other mainstays of the economy. A small light industry sector caters to the local market. The Dominican economy has also been dependent on agriculture, mainly bananas (Central Intelligence Agency, 2017). However, in recent years, the economy has increasingly been driven by tourism. Dominica has also successfully developed an offshore medical education sector and is attempting to foster an offshore financial industry, and it also has plans to explore geothermal energy resources.² In addition, Dominica has benefited from an Economic Citizenship Programme, which attracts foreign investment in exchange for citizenship.³

Over the last 10 years (2007–2016), both countries had lower than average economic growth for small states, and only Vanuatu recorded average growth slightly above the world average (Figure 1). Prior to the 2007–2008 global financial crisis, economic growth peaked in 2008 for both countries – at 7.1 per cent for Dominica⁴ and 6.4 per cent for Vanuatu⁵ (Figure 1). The impact of

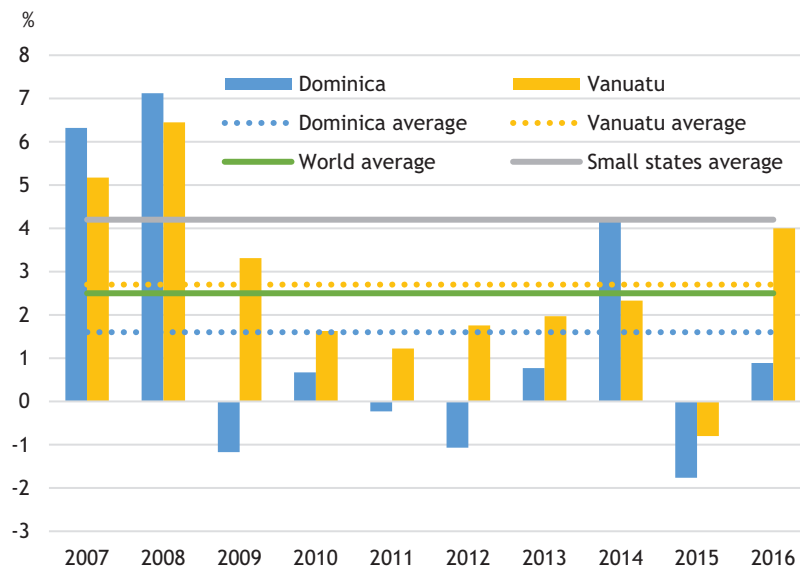
Table 1 General characteristics

	Dominica	Vanuatu
Independence	1978	1980
Capital city	Roseau	Port Vila
Official language	English	Bislama, English, French
Currency	East Caribbean Dollar	Vatu
Area	750 km ²	12,190 km ²
Population	73,543 (2016) ^a	270,402 (2016) ^a
Population density (per km ²)	98	22
GDP per capita	US\$7,145 ^a	US\$2,861
Poverty rate	29 (2009) ^b	13 (2013) ^c
Unemployment rate	13.9 ^b	4.6 ^d

GDP, gross domestic product.

Sources: Commonwealth (2017a,b) unless otherwise stated. ^aWorld Bank (2017a), ^bKairi Consultants Limited (2009), ^cVanuatu NSO and UNDP Pacific Centre (2013), ^dVanuatu NSO (2009a).

Figure 1 GDP growth (%)



GDP, gross domestic product.

Note: Averages are over 10 years (2007–2016).

Source: World Bank (2017a).

the global financial crisis was particularly severe for Dominica, whereas Vanuatu's economy was relatively sheltered (Figure 1). While both countries' tourism sectors were adversely affected, Vanuatu's economy was buttressed by its commodity exports and agricultural production (IMF 2013a, 2015a). Vanuatu also managed a strong recovery from 2011 onwards, up until 2015, when Cyclone Pam hit. This pre-cyclone growth was led by agricultural production and exports as global commodity prices increased, and by a few large public infrastructure projects, such as the submarine cable connection, which was completed in 2014 (IMF 2015a). On the other hand, Dominica's recovery from the global financial crisis was fragile owing to anaemic domestic demand and closure of some manufacturing operations (IMF 2013a). As expected, both countries' economic growth fell in the aftermaths of Cyclone Pam and Hurricane Erika, although the impact on Dominica has been more pronounced (Figure 1). In addition, while both countries have since recovered from the impact of the disasters, Vanuatu has rebounded more strongly (Figure 1; see also Section 5.4).

In terms of income per capita, Dominica appears wealthier, being an upper middle-income country, with an income of US\$7,145 per capita, while Vanuatu is a least developed country, with an income of US\$2,861 per capita (World Bank 2017a).

Dominica also ranks (96) ahead of Vanuatu (134) on the Human Development Index of a total of 188 countries (UNDP 2016).

However, Dominica's last recorded poverty rate, 29 per cent (in 2009) (Kairi Consultants Limited 2009), was much higher than Vanuatu's, 13 per cent (in 2010) (Vanuatu NSO and UNDP Pacific Centre 2013). The main causes of poverty in Dominica are due to external factors, including the decline of the banana industry, high food and energy prices, the global economic crisis and the impact of natural disasters (Kairi Consultants Limited 2009). In contrast, despite facing similar external challenges, including in comparison with Pacific island countries, Vanuatu's poverty rate is much lower, which could be a reflection of the high levels of subsistence production (Vanuatu NSO et al. 2006).

Women, children and youth are most vulnerable in both countries, including to the impact of disasters (Kairi Consultants Limited 2009; Vanuatu NSO and UNDP Pacific Centre 2013). More than half of Dominica's children and one third of Vanuatu's children live in poor households. However, while there was no significant gender disparity in poverty in Dominica (Kairi Consultants Limited 2009), gender-based inequality is an issue for Vanuatu (Vanuatu NSO and UNDP Pacific Centre 2013), particularly in urban areas, where women are more vulnerable to falling into poverty.

Although the ni-Vanuatu might not be well off in terms of income, their strong family and community ties have traditionally provided social safety nets for the most disadvantaged and vulnerable (Vanuatu NSO et al. 2006), which has been critical in times of natural disasters. Vanuatu was also ranked fourth of 140 countries by the 2016 Happy Planet Index Score, which measures how well nations are doing with achieving long, happy, sustainable lives (Dominica was not ranked) (Jeffrey et al. 2016).

Vanuatu's unemployment rate is also lower, at 4.6 per cent (Vanuatu NSO 2009a), compared with 13.9 per cent for Dominica (Kairi Consultants Limited 2009), both last recorded in 2009. However, although a high percentage of Vanuatu's population aged 15 and older was economically active (71%), only a relatively small proportion (30%) received a regular paid income (Vanuatu NSO 2009b), reflecting the large rural subsistence-based population and probably indicating high underemployment.

2.3 Governance

Both countries gained independence around the same time – Dominica from the United Kingdom in 1978 and Vanuatu from the United Kingdom and France in 1980. Vanuatu and Dominica currently also have similar systems of government based on a unicameral parliament (Freedom House 2015a,b). In Vanuatu, elections are held every four years, while Dominica's government serves five-year terms. Vanuatu's parliament has 52 seats, while Dominica's House of Assembly consists of 30 members. In both countries, the president is a ceremonial head of state, elected by Members of Parliament and the heads of the six provincial governments in Vanuatu and by the House of Assembly in Dominica. Vanuatu also has in place a National Council of Chiefs, which works in parallel with Parliament, exercising authority mainly over language and cultural matters.

Both governments are guided by national development plans. Vanuatu has in place a long-term plan – *Vanuatu 2030: The People's Plan* (2016–2030) (Vanuatu DSPPAC 2016) – while Dominica has in place a medium-term plan – *Growth and Social Protection Strategy* (2014–2018) (Dominica Government 2014). Both plans are based on three pillars. Vanuatu's plan is based on social, environmental and economic pillars, while Dominica's three-fold focus is on fiscal policy, economic growth strategies and, poverty reduction and social protection.

However, there are stark differences in the functioning of the governments. While the Dominican government generally implements anticorruption laws effectively, abuse of office and corruption have been serious problems for Vanuatu (Freedom House 2015a).

Local government in Dominica comprises one city, one town and one urban council, 38 village councils and the Carib Council.⁶ In Vanuatu, there are six provincial councils and three municipal councils (CLGF 2015). While local government in Dominica is largely responsible for road maintenance, local government in Vanuatu is responsible for various services ranging from education to regional planning (CLGF 2015).

The non-governmental organisation (NGO) community in Dominica, while comparatively small, is involved in fundraising and volunteerism in gender, health, environmental and community projects (United States Department of State 2017). The government occasionally partners with NGOs on various activities. Vanuatu, on the other hand, has a long-standing history of civil society organisations (CSOs) operating in a range of sectors, including governance, disaster risk reduction, health and disability services (ADB 2017a). Outside the urban centres, the state reach is very weak, and power is vested in the churches and the *kastom* chiefly system (ADB 2017a). Although the Vanuatu Government has prioritised CSO engagement since 2002, civil society participation in policy-making has been limited and opportunities underutilised as civil society have traditionally focused on service delivery rather than on being a watchdog (ADB 2017a).

2.4 Vulnerability and resilience

Vanuatu topped the list of 171 countries most at risk of natural disasters according to the 2016 World Risk Index, for the fourth year in a row (Dominica was not assessed).⁷ The island nation experiences cyclones, storm surges, landslides, flooding and droughts (Vanuatu Government 2015a) (Table 2). Vanuatu is also located on the Pacific Ring of Fire and is highly exposed to geophysical threats, such as volcanic eruptions, earthquakes and tsunamis. Similarly, like most of its Caribbean neighbours, Dominica is vulnerable to multiple hazards, some of which can occur simultaneously (Dominica ODM 2014) (Table 2). Among the most common are hurricanes, earthquakes, flooding, volcanic activity, and associated tsunami threats.

Table 2 History of disasters

Dominica				
Year	Disaster	Estimated damage (US\$000) ^a	Total affected ^b	Deaths ^c
1930	Tropical Cyclone			2,000
1963	Tropical Cyclone Edith	2,600		
1979	Tropical Cyclones David and Frederick	44,650	72,100	40
1984	Tropical Cyclone Klaus	2,000	10,000	2
1989	Tropical Cyclone Hugo	20,000	710	
1995	Tropical Cyclone Marilyn	175,000		
	Tropical Cyclone Luis	20,000	5,001	2
1999	Tropical Cyclone Lenny		715	
2004	Earthquake		100	
2007	Tropical Cyclone Dean	20,000	7,530	2
2011	Tropical Storm Ophelia		240	
2015	Hurricane Erika	482,810	28,594	30
Vanuatu				
Year	Disaster	Estimated damage (US\$000) ^a	Total affected ^b	Deaths ^c
1951	Tropical Cyclone	250		100
1981	Tropical Cyclone Gyan	1,000		
1985	Tropical Cyclones Eric and Nigel	173,000	117,500	9
1987	Tropical Cyclone Uma	25,000	48,000	48
1988	Tropical Cyclone Anne		4,700	
	Tropical Cyclone Bola		2,000	
	Landslide		3,000	1
1992	Tropical Cyclone Betsy		10	2
	Tropical Cyclone Fran		1,150	
1993	Tropical Cyclone Prema	6,000	12,005	4
1997	Tsunami	100		
1998	Tropical Cyclones Yali and Zuman		2,400	
1999	Earthquake	12	14,100	
2001	Tropical Cyclone Paula			1
	Tropical Cyclone Sose		800	1
	Volcanic activity		4,500	
2002	Earthquake		500	
	Earthquake		503	
	Flood		3,001	
2004	Tropical Cyclone Ivy		54,008	2
2005	Volcanic activity: Mt Ambae		5,000	
2008	Volcanic activity: Mt Ambrym		9,000	
2009	Flood		950	
	Volcanic activity: Mt Garet		400	
2011	Tropical Cyclone Vania		32,000	
2014	Tropical Cyclone Lusi		20,006	12
2015	Cyclone Pam	449,400	188,000	11

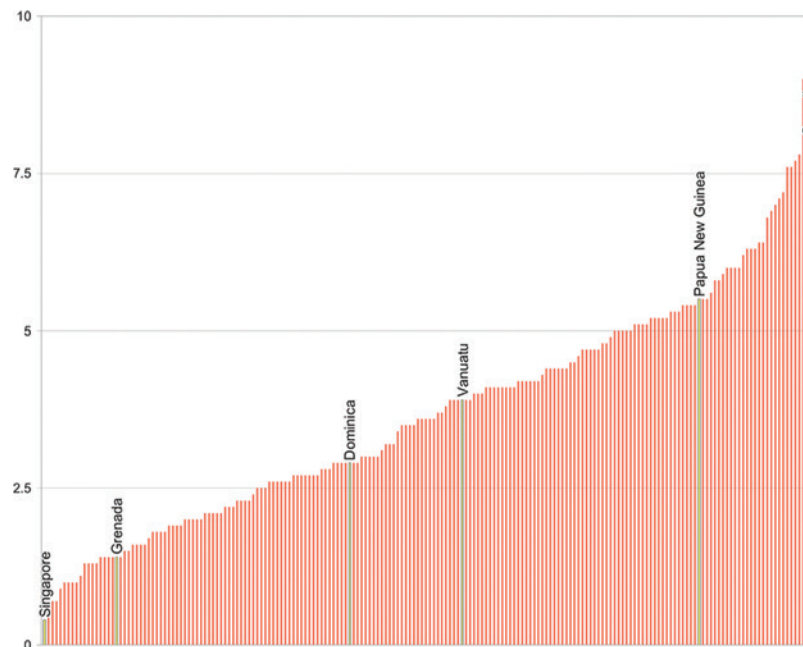
Notes: ^aThe amount of damage to property, crops and livestock in the year of the event. ^bSum of injured (those suffering from physical injuries, trauma or an illness requiring immediate medical assistance as a direct result of a disaster), homeless (number of people whose houses were destroyed or heavily damaged and who therefore needed shelter after an event) and affected people (those requiring immediate assistance during a period of emergency). ^cNumber of people who lost their lives because the event happened.

Source: EM-DAT: The Emergency Events Database - Université catholique de Louvain (UCL) - CRED, D. Guha-Sapir - www.emdat.be, Brussels, Belgium (accessed 25 September 2017).

Both countries have a long history of suffering significant damage, loss of life, injuries and homelessness from various disasters (Table 2). Prior to the devastation of Cyclone Pam and Hurricane Erika, both countries had encountered similar destruction in the form of Cyclones David and Frederick in Dominica in 1979 and Tropical Cyclones Eric and Nigel in Vanuatu in 1985. Vanuatu has, however, encountered more incidences of disasters than Dominica. Vanuatu also has a higher risk of humanitarian crises and disasters than Dominica based on the Index for Risk Management⁸ (Figure 2).

While vulnerability to disasters is an important indicator in assessing a country's disaster risk profile, its resilience and ability to cope are equally important factors. According to Briguglio's (2014) revised vulnerability/resilience framework, Dominica and Vanuatu are both categorised as 'high vulnerable and high resilience' countries. This means that while they are both highly vulnerable to shocks, including natural disasters, they also have policies and structures in place to minimise or withstand the adverse effects from such shocks.

Figure 2 Index for Risk Management (INFORM)



Source: Inter-Agency Standing Committee Task Team for Preparedness and Resilience and the European Commission (2017).

3. Disaster Risk Reduction and Management Strategies

3.1 Legal framework

Dominica's current legal framework for disaster risk management is captured in the Emergency Powers (Disaster) Act: Chapter 15:03 – Act 20 of 1987. This act gives the President the authority to declare a state of emergency and take necessary action to respond to disasters. On the other hand, Vanuatu's national disaster risk management arrangements are stipulated under two separate legislations. The National Disaster Act 2000 is focused on preparedness and response arrangements for disasters, while the Meteorology Act (Cap 204) (Act No. 4 of 1989) sets out the national arrangement for monitoring and warning for severe weather, including tropical cyclones and other meteorological hazards.

For both countries, their disaster legislations are focused on emergency and disaster response, rather than on disaster risk reduction. Both governments have recognised these challenges and are making efforts to address this. Since 2014, Dominica has been in the process of finalising a draft Comprehensive Disaster Management Bill with the assistance of the Caribbean Disaster Emergency Management Agency (CDEMA) (Dominica ODM 2014; CDEMA 2017a). In Vanuatu's case, disaster risk reduction is now more comprehensively captured in its Climate Change and Disaster Risk Reduction Policy 2016–2030 (Vanuatu Government 2015a), indicating that policies are more advanced than legislation.

3.2 Policy framework

Dominica developed a National Disaster Plan in 1986, which was subsequently revised in 2001 and again in 2009 (Dominica ODM 2014). The plan details arrangements to manage the effects of disasters, assigns responsibilities and outlines coordination of emergency activities during major disasters, and encourages a process of learning to cope adequately with the recovery (Dominica NEPO 2011). While consultations have been held on the revised draft, it was still not formally endorsed at the time this paper was finalised

(Dominica ODM 2017). Disaster risk reduction elements are also not comprehensively covered in the National Disaster Plan. However, some aspects of disaster risk reduction are captured in Dominica's Low-Carbon Climate-Resilient Development Strategy 2012–2020 (Dominica Government 2012).

In contrast, disaster risk reduction has been increasingly referenced in Vanuatu's normative frameworks, including its overarching national development plan (Vanuatu 2030). Similar to Dominica, though, Vanuatu's National Disaster and Emergency Plan, which was first established in 1987, focused on disaster management and response. With the recognition of the importance of disaster risk reduction, the initial framework evolved into the Disaster Risk Reduction and Disaster Risk Management National Action Plan 2006–2016 and with further recognition of the importance of an integrated policy response to climate change and disasters, Vanuatu's latest policy guideline is framed in its Climate Change and Disaster Risk Reduction Policy 2016–2030, which was endorsed in 2015.

Vanuatu also has in place a National Cyclone Support Plan 2016–17, which provide guidelines for all agencies on a coordinated approach during a cyclone response (Vanuatu MCCA 2016). This plan was initiated following the lessons learnt from Cyclone Pam. In addition, a Provincial Disaster and Climate Response Plan 2016 is in place to guide provincial councils to enhance coordination between the national, provincial, area council and community levels in terms of prevention of, preparation for, response to and recovery from disasters in each province (Vanuatu NDMO 2016).

3.3 Institutional framework and humanitarian coordination architecture

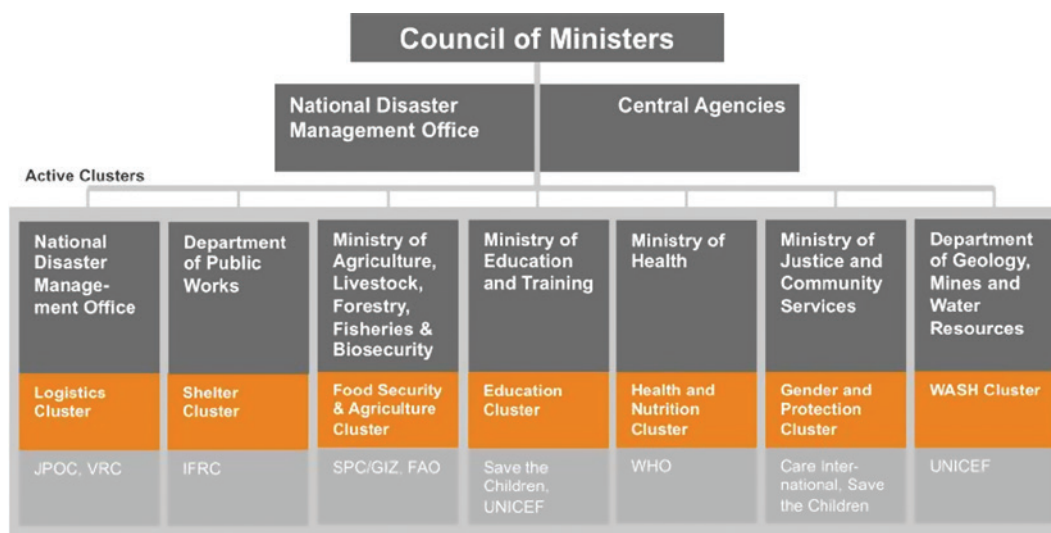
Dominica's National Emergency Planning Organisation (NEPO) has the central responsibility for the planning and organisation of counter-disaster

measures. NEPO oversees the Office of Disaster Management (ODM), its implementation arm, district- and community-level committees, and various taskforces (Dominica ODM 2014). The ODM falls under the Ministry of Justice, Immigration and National Security. Similarly, Vanuatu has in place a National Disaster Committee (NDC), overseeing the National Disaster Management Office (NDMO) and provincial and community disaster committees. The NDMO sits under the Ministry of Climate Change and Adaptation.

For both countries, budget allocation to these offices, although marginal against total government expenditure (under 0.2%),⁹ has increased significantly, demonstrating the increased priority of disaster risk within central government. ODM's allocation doubled from US\$84,407 in 2011/12 to US\$197,899 in 2014/15 (Dominica Government 2015c) and then to US\$203,355 (Dominica Government 2015d) in 2015/16. NDMO's allocation increased from US\$115,000 (PCRAFI 2015) in 2005 to US\$228,188 in 2015 (Vanuatu Government 2015b) and further to US\$314,187 in 2017.

Dominica's NEPO and ODM work closely with the CDEMA in responding to disasters. The CDEMA is a regional intergovernmental agency for disaster management in the Caribbean Community, with responsibility for the mobilisation and coordination of emergency response and relief efforts to its participating states (CDEMA 2017b). In Vanuatu's case, the NDC and NDMO work closely with the Vanuatu Humanitarian Team (VHT),¹⁰ which is a network of NGOs committed to effective humanitarian coordination, disaster preparedness and humanitarian response. In 2011, the NDMO, the VHT and the United Nations (UN) Office for the Coordination of Humanitarian Affairs (OCHA) adopted a cluster coordination mechanism to strengthen the effectiveness and coordination of humanitarian assistance during times of emergency (Vanuatu Government 2015c) (Figure 3). Clusters¹¹ have clear responsibilities for sectoral coordination and create partnerships between national and local authorities, international humanitarian actors and civil society. The NDMO has the responsibility for the coordination of all line government agencies and clusters as well as the lead cluster for logistics.

Figure 3 Vanuatu Government: humanitarian coordination architecture



Source: Vanuatu Government (2015c).

4. Public Financial Management of Disasters

A country's debt situation is important in understanding its sovereign risk, which in the context of disasters is the risk that a government could default on its debt or other obligations as a result of a disaster (UNISDR 2015b). For Vanuatu, public debt as a percentage of gross domestic product (GDP) has been relatively low at around 22 per cent over the last 10 years (Figure 4). This is in line with successive governments' cautious approach to debt financing (IMF 2013b, 2015a, 2016b), undertaking strict public expenditure restraint amid constant revenues (PCRAFI 2015). Government revenues are low by regional standards and Vanuatu does not have a personal or corporate income tax (IMF 2016b).

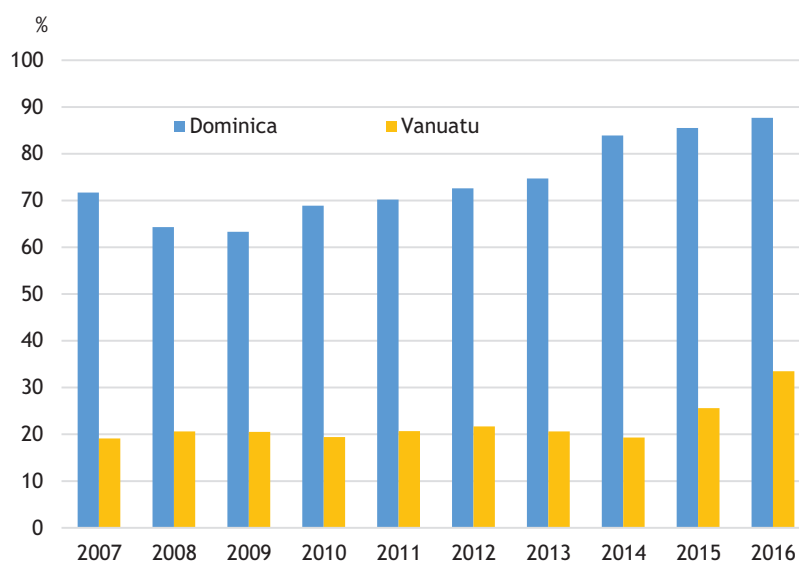
In contrast, Dominica's debt has been relatively high at around 74 per cent for the same period (Figure 4). However, Dominica's debt had fallen from a high of 100 per cent of GDP in mid-2002¹² to around 63 per cent in 2009, following a large fiscal adjustment and debt-restructuring programme that was supported by two International Monetary Fund (IMF) programmes during 2002–2006 (IMF 2016c). The government had subsequently pursued an

expansionary fiscal policy during 2007–2010, which has seen debt rise steadily again (IMF 2016c). Nevertheless, in the years before Hurricane Erika, the Dominican Government had reinvigorated efforts towards debt consolidation and was undertaking various reforms to meet the Eastern Caribbean Currency Union (ECCU)¹³ public debt target of 60 per cent of GDP by 2020 (IMF 2016a).

Prior to Cyclone Pam and Hurricane Erika, Vanuatu's risk of debt distress was low (IMF 2013b), while Dominica's risk of debt distress was moderate (IMF 2013a). Both countries saw an increase in public debt as a percentage of GDP following the cyclones. As a result, after the cyclone, Vanuatu had a moderate risk of debt distress (IMF 2016b), while Dominica had a high risk of debt distress (IMF 2016a).

Given a country's debt situation, insurance and other forms of risk financing are crucial in reducing sovereign risk to disasters. These can be in the form of either ex-ante (before a disaster) or ex-post (after a disaster) financing instruments. Ex-ante risk-financing instruments require proactive advance planning and include

Figure 4 Central government debt (percentage of GDP)



Sources: IMF (2008, 2011, 2013a, 2015a, 2016a,b).

budget contingencies, reserves or disaster funds, contingent debt facility and risk transfer mechanisms, while ex-post financing instruments are sources that do not require advance planning, such as donor assistance, budget reallocation, domestic credit, external credit and tax increases (Ghesquiere and Mahul 2010).

4.1 Ex-ante financing practices and arrangements

Dominica has in place a traditional indemnity-type insurance cover and holds a sovereign catastrophe risk insurance cover under the Caribbean Catastrophe Risk Insurance Facility (CCRIF) (see Box 1). Vanuatu also maintains traditional insurance and parametric insurance under the Pacific Catastrophe Risk Insurance programme (see Box 1). In addition, Vanuatu has in place a few other ex-ante disaster-financing instruments (Table 3), such as an Emergency Disaster Fund of around US\$23,000, which has been budgeted for each year since 2010 (PCRAFI 2015). Although appropriated annually, it does not accrue to the next financial year if not used and funds are released only after a request from the NDMO and approval by the NDC (PCRAFI 2015). However, this provision is not enough to cover for disaster losses and it was completely depleted during Tropical Cyclone Vania, a Category 1 cyclone (PCRAFI 2015).

Vanuatu has in place a contingency budget equal to 1.5 per cent of total appropriations (World Bank 2015b), which is around US\$2.5 million (IMF 2016b). Although Dominica's 1978 Constitution Chapter 5 (80) (Dominica Government 1978) and Finance (Administration) Act, 1994, Act 4 of 1994 (Part 111)(7) (Dominica Government 1994), makes provision for a Contingencies Fund, the Dominican Government has not included contingencies in its annual budget provisions.

4.2 Ex-post financing practices and arrangements

As with many other governments, both Dominica and Vanuatu have legal provisions to reallocate budgets and also have allowances for supplementary budgets to address a declared state of emergency or a financial emergency (Table 4). In Vanuatu, transfers within ministries, which are processed within a maximum of three working days, are managed under strict conditions stipulated in the Public Finance and Economic Management (PFEM) Act, Section 34 (A) and (B), requiring both authorisation from the ministers from whose departments funds are being transferred and approval by the Minister for Finance (PCRAFI 2015). The PFEM Act, Section (C) (1–2) also allows for a supplementary allocation of up to 1.5 per cent of the total appropriation for the fiscal year (contingency allowance) following a declared state of emergency or a financial emergency, which are clearly stipulated under Article 69 of Vanuatu's Constitution (PCRAFI 2015). Budget reallocations in Dominica are provided for in the Finance (Administration) Act, 1994, Act 4 of 1994 (Part V) (26) (Dominica Government 1994), while supplementary budgets can be appropriated under Section 80 (1) of the Constitution (Dominica Government 1978) as well as under Section 12 of the Finance (Administration) Act (Dominica Government 1994).

Both countries also receive donor assistance for immediate relief and for subsequent recovery and reconstruction efforts. However, there is uncertainty about the amount of funds that would be received. Bilaterally, Dominica's major humanitarian aid donor is the UK, while Vanuatu's major humanitarian assistance comes from Australia (OECD 2017). Both countries also have access to various disaster response facilities of international financial institutions (IFIs) (Table 5) as well as recourse to issuing bonds.

Box 1 Caribbean and Pacific regional parametric insurance facilities

The CCRIF, formed in 2007, was the first multicountry risk pool in the world. The CCRIF is designed as a regional catastrophe fund for Caribbean governments to limit the financial impact of natural disasters by quickly providing financial liquidity when a policy is triggered. The Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) was also launched in 2007, but its Pacific Catastrophe Risk Insurance Pilot was rolled out in 2013. The PCRAFI's other core component is a technical assistance and capacity-building programme on disaster risk financing and insurance, including public financial management of disasters.

Coverage	CCRIF	PCRAFI
Operational	– 2007 – 2014-present (operating as CCRIF Segregated Portfolio Company registered in the Cayman Islands)	– 2013–15 (pilot) – 2016-present (registered in the Cook Islands)
Partners	World Bank, Japan, Canada, EU, UK, France, Caribbean Development Bank, Ireland, Bermuda	World Bank, Secretariat of the Pacific Community, Asian Development Bank, Japan, EU, Pacific Islands Forum Secretariat
Capitalisation	Multidonor Trust Fund with contributions from Canada, USA, EU and Germany (since 2014)	Multidonor Trust Fund with contributions from Germany, Japan, UK and USA (since 2016)
Countries	<i>Caribbean:</i> Anguilla, Antigua and Barbuda, The Bahamas, Barbados, Belize, Bermuda, Cayman Islands, Dominica, Grenada, Haiti, Jamaica, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Trinidad and Tobago, Turks and Caicos Islands; <i>Central America:</i> Nicaragua	Cook Islands, Marshall Islands, Samoa, Tonga, Vanuatu
Risk coverage	Earthquake, tropical cyclone and excess rainfall	Tropical cyclone and/or earthquake/tsunami
Premium	Each member pays an annual premium directly related to the amount of risk it transfers to CCRIF and can purchase coverage up to a limit of approximately US\$100 million for each insured hazard	– 2013: fully covered by grants – 2014: US\$20,000 (5% of total premium); Cook Islands paid in full – 2015: US\$40,000 (14% of total premium); Cook Islands paid in full
Pay-outs	Since its inception in 2007, around US\$100 million to 12 of its 17 member countries (within 14 days of the event)	Since the pilot phase, two payouts totalling US\$3.2 million to Tonga and Vanuatu (within 10 days of the event)

Sources: CCRIF (2015a, 2017), PCRAFI (2016), World Bank (2015c, 2016).

Table 3 Ex-ante disaster-financing instruments

Financing instruments*	Dominica**	Vanuatu***
Budget contingencies ^a	X	✓
Reserve fund ^b	X	✓
Contingent debt facility ^c	X	X
Parametric insurance ^d	✓	✓
Alternative risk transfer ^e	X	X
Traditional insurance ^f	✓	✓

Notes: ^aGeneral contingency appropriation to cover unforeseen costs without relying on reallocation of resources from other priorities or legislative approval for supplementary appropriations. ^bSpecific budget appropriation for use in the event of a disaster. ^cFacility that disburses once a disaster occurs, to secure timely access to funds in a post-disaster period. ^dPays out immediately when a measurable event occurs. ^eSuch as catastrophe bonds and weather derivative contracts. ^fIndemnity-type insurance, which pays the insured the approved cost of repair or depreciated cost of an asset (World Bank 2014a).
Sources: *Ghesquiere and Mahul (2010), World Bank (2014b); **IMF (2016a,c), Benson et al. (2001); ***World Bank (2015a), PCRAFI (2015).

Table 4 Ex-post disaster-financing instruments

Financing instruments*	Dominica**	Vanuatu***
Budget reallocation	✓	✓
Donor assistance (relief)	✓	✓
Donor assistance (recovery and reconstruction)	✓	✓
Domestic credit ^a	✓	✓
External credit ^b	✓	✓
Special taxes ^c	X	X

Notes: ^aBond issue. ^bSuch as emergency loans, bond issue. ^cTo support reconstruction.
Sources: *Ghesquiere and Mahul (2010), World Bank (2014b), **Dominica Government (1978, 1994), ***World Bank (2015a), PCRAFI (2015).

Table 5 Eligibility for international financial institutions' disaster response facilities

IFI	Facility	Features	Eligibility	
			Dominica	Vanuatu
IMF	Rapid Credit Facility	Access 18.75%–37.5% of member's quota per year or 75% cumulative. Zero interest rate, 5.5 years' grace period, final maturity of 10 years	✓ PRGT eligible	✓ PRGT eligible
	Rapid Financing Instrument	Access 37.5% of member's quota per year or 75% cumulative. Up to 60% of quota per year if natural disaster causes assessed damage of 20% of GDP or more. Repaid within 3¼ to 5 years. Cost includes commitment fee (depending on quota), lending rate (Special Drawing Rights interest rate + Surcharge) and service charge of 50 basis points	✓ All member countries	✓ All member countries
	Catastrophe Containment and Relief Trust	Conditional on a catastrophic disaster, ^a debt flow relief for two years following disaster or full cancellation of debt where disaster has created long-lasting balance of payments needs	✗ Upper middle income PRGT eligible	✓ Low income PRGT eligible
World Bank	IDA Crisis Response Window (CRW)	Allocation conditional on parametric data, impact assessment and availability of CRW resources. Concessional terms identical under IDA	✓ IDA eligible	✓ IDA eligible
Caribbean Development Bank	Emergency Relief Grant	Amount not exceeding US\$200,000 for damage assessments, provision of emergency relief supplies and transportation costs	✓ Borrowing member country	n/a
	Immediate Response Loan	Amount not exceeding US\$750,000 provided at a concessionary rate for clearing and cleaning of affected areas and emergency restoration of critical infrastructure and essential public services	✓ Borrowing member country	n/a
	Rehabilitation and Reconstruction Loan	Member country to request within six months of the disaster. Offered at concessional rates	✓ Borrowing member country	n/a
Asian Development Bank	Asia Pacific Disaster Response Fund	Grant totalling up to US\$3 million per event conditional on statement of national emergency and assessment by UNHRC	n/a	✓ Developing member country

Notes: ^aDefined as a natural disaster that has (i) directly affected at least one third of the population and (ii) destroyed more than one quarter of the country's productive capacity or caused damage deemed to exceed 100 per cent of GDP.

IDA, International Development Association; PRGT, Poverty Reduction and Growth Trust; UNHRC, UN Humanitarian Resident Coordinator.

Sources: CDB (2009), ADB (2017b), IMF (2017a,b,c), World Bank (2017b).

5. Cyclone Pam and Hurricane Erika

Given Dominica's and Vanuatu's national contexts, as well as their disaster risk management strategies in place, this section compares the two countries' responses to and efforts to recover from Cyclone Pam and Hurricane Erika, to assess the relationship between risk management planning and financial capacity, and the quality of emergency response and recovery.

5.1 The disasters

Category 5 Cyclone Pam hit Vanuatu on 13–14 March 2015 (Figure 5) with winds of 250 km/h (gusts peaking around 320 km/h), which flattened homes, schools and villages, causing 11 deaths, with more injuries recorded and an estimated 65,000 people displaced from their homes (SPC

Figure 5 Cyclone Pam timeline



Source: SPC (2016).

2016). An estimated 188,000 people were affected by Cyclone Pam, with reports of approximately 17,000 buildings damaged or destroyed, along with severe damage to crops, which affected at least 80 per cent of the country's rural population (SPC 2016).

Although Hurricane Erika was not as severe as Cyclone Pam (recording maximum winds of around 75 km/h; Pasch and Penny 2016), when it passed over Dominica on 24–28 August 2015 (Figure 6), it produced extraordinarily intense rainfall (Dominica Government 2015e). Coupled with Dominica's mountainous island topography and the saturated condition of the soil, the heavy rainfall resulted in intense and rapid flooding, with little warning to the population (Dominica Government 2015e). Dominica suffered severe infrastructure damage, primarily related to transportation, housing and agriculture. There were 30 deaths and around 28,594 people were affected.

The estimated damage to both countries was sizeable (Table 2). Vanuatu's damage from Cyclone Pam was around US\$449 million (64% of GDP) (Vanuatu Government 2015d), while Hurricane

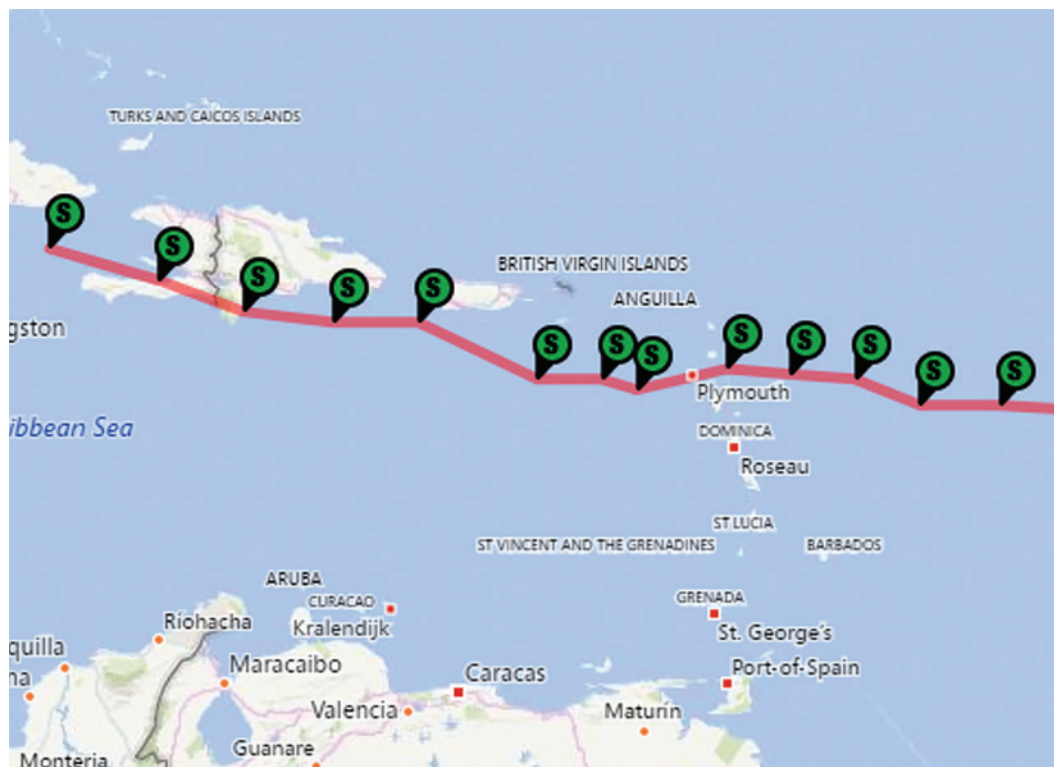
Erika resulted in damage of around US\$483 million (90% of GDP) (Dominica Government 2015e).

Therefore, despite the vastly different categories of cyclones, the impact was still sizeable for both, highlighting the unique vulnerabilities of small island developing states.

5.2 Response

Both countries reacted in similar ways to Cyclone Pam and Hurricane Erika (Tables 6 and 7). Their national disaster offices/coordinating bodies took the lead in response efforts, with initial assessments carried out to plan relief efforts, and requests made to regional and international partners for support. Whereas Vanuatu declared a state of emergency, Dominica's assessment was that there was no need to declare a state of emergency (Dominica News Online 2015) and instead it declared nine special disaster areas. The regional and international community responded quickly and personnel/support deployed within days, especially through the FRANZ arrangement,¹⁴ a trilateral disaster relief arrangement between Australia, France and New

Figure 6 Hurricane Erika path



Note: S denotes tropical storm according to AccuWeather's map legend. Source: AccuWeather (2017).

Zealand. Local NGO networks were also active in relief efforts.

Both governments prioritised relief efforts for the most vulnerable communities affected by the disasters (IMF 2016a,b). The Vanuatu Government also suspended value-added tax (VAT) and import duties on construction materials for two months after the cyclone, deferred payments of vehicle registration fees and VAT to the next quarter, and provided subsidies for agricultural seedlings to affected households (IMF 2016b). The Vanuatu National Provident Fund also allowed its 40,000 active members to withdraw up to 20 per cent of their retirement savings to cover expenses related to Cyclone Pam (IMF 2016b).

Nevertheless, the response efforts in both countries were not without challenges. Common to both were the significant logistics and transportation challenges due to the isolation of numerous communities and challenging geographical terrain (SPC 2016; IFRC 2017). There were also coordination challenges, particularly data flow and information management coordination from the national disaster offices/coordinating bodies (SPC 2016; IFRC 2017). In addition, in Vanuatu, coordination of international assistance was initially an issue, as there was a lack of knowledge of the existing national coordination system on the part of some international partners (SPC 2016).

Table 6 Vanuatu's response to Cyclone Pam

Day(s) after Pam	Date	Response
1	14 March	<ul style="list-style-type: none"> Initial assessment and relief begins
2	15 March	<ul style="list-style-type: none"> Evacuation centre registration begins
3	16 March	<ul style="list-style-type: none"> State of emergency declared Aerial assessments by Australian Defence Force Bauerfield International Airport opens International support begins to arrive
4–5	17–18 March	<ul style="list-style-type: none"> Aerial assessment reports issued Initial assessment teams deployed
5–7	18–20 March	<ul style="list-style-type: none"> UN humanitarian coordinator arrives Government allocated VUV 96 million to food distribution Initial site assessments completed
8–9	21–22 March	<ul style="list-style-type: none"> Food distribution begins Displacement Tracking Matrix in 25 evacuation centres
16–18	29–31 March	<ul style="list-style-type: none"> 10-day aerial survey of affected areas begins Second phase of multisector assessments
19–33	1–15 April	<ul style="list-style-type: none"> State of emergency extended for two weeks
39–41	21–23 April	<ul style="list-style-type: none"> Post Disaster Needs Assessment Report released NDMO, VHT and UNOCHA consolidate Humanitarian Action Plan
79	May	<ul style="list-style-type: none"> 18,000 households reached with emergency shelter support Roll-outs of food supported by World Food Programme Shelter assessments completed
140	June/July	<ul style="list-style-type: none"> Lessons Learned reports presented by clusters Lessons Learned workshop held Third round of food distribution to Efate

Source: SPC (2016).

Table 7 Dominica's response to Hurricane Erika

Day(s) after Erika	Date	Response
1	27 August	<ul style="list-style-type: none"> • ODM and NEPO advise nation on safety protocols and procedures • Initial assessment reports received
2	28 August	<ul style="list-style-type: none"> • Dominica requests technical assistance from World Bank for preparation of damage and impact assessment
3	29 August	<ul style="list-style-type: none"> • Nine 'special disaster areas' declared • Teams conducting damage assessment and needs analysis dispatched • Government sets up account at the Eastern Caribbean Central Bank to receive contributions • Regional response mechanism through CDEMA activated
4–11	30 August to 6 September	<ul style="list-style-type: none"> • Military vessels and helicopters from Venezuela, Netherlands and UK arrive to assist with search and rescue, medical and infrastructure support and damage assessment • Helicopters from France and Trinidad and Tobago assist with rescue and dispatch of relief items
30	25 September	<ul style="list-style-type: none"> • Rapid damage and impact assessment report finalised
126	17 December	<ul style="list-style-type: none"> • National after action review workshop held

Source: Dominica Government (2015e,f).

In terms of learning from their experiences, both countries conducted workshops to review the lessons learnt from Cyclone Pam and Hurricane Erika, but only Vanuatu produced a detailed report and recommendations (SPC 2016; IFRC 2017). Cyclone Pam tested Vanuatu's disaster management structures and, while there were processes that worked well, several areas were highlighted for improvement (SPC 2016). Some key recommendations from the lessons learnt from Cyclone Pam included improving coordination and information sharing between the different levels of government (national and provincial), communities and agencies (national, regional and international) (SPC 2016). Some changes to the National Disaster Management Act and standard operating procedures were also recommended (SPC 2016). In addition, there was a need to better track international funding in a more transparent manner (SPC 2016).

5.3 Finance

Both countries conducted rapid damage and needs assessment within days of the disasters. Vanuatu also followed up with a Humanitarian Action Plan based on a second phase of

harmonised assessment. At the time of issuing the Humanitarian Action Plan, Vanuatu had raised close to US\$16 million through its flash appeal, with around US\$13.5 million requested through the Humanitarian Action Plan. Overall, Vanuatu raised around US\$44 million in humanitarian aid for Cyclone Pam, of which Australia donated US\$11 million (ODE 2017).¹⁵ Vanuatu also drew on its Emergency Disaster Fund (US\$23,000), redeployed funds to disaster relief efforts and accessed its general contingency budget allocation, amounting to a total of US\$3.6 million (IMF 2016b).

Although there is no information available on the total humanitarian aid flows to Dominica for Hurricane Erika, in its flash appeal Dominica received an Emergency Relief Grant of US\$200,000 from the Caribbean Development Bank administered through CDEMA and a US Government emergency grant of US\$50,000 through the International Federation of the Red Cross (Dominica Government 2015e). The EU Humanitarian Aid and Civil Protection Department also provided €300,000 in emergency humanitarian funding through the Pan American Health Organisation (Dominica Government 2015e).

Table 8 Reconstruction loans to Vanuatu (US\$ million)

Source	Approved	Grant	Loan	Total
ADB				
Cyclone Pam road reconstruction	25 Nov 15	12.5 ^a	3.8	16.3
Cyclone Pam road reconstruction – additional financing	9 Aug 17	4.1	4.1	8.2
WORLD BANK				
Vanuatu infrastructure reconstruction and improvement project	17 Jun 16		50.0	50
IMF				
Rapid credit facility and rapid financing instrument	5 Jun 15		23.8	23.8
TOTAL		16.6	81.7	98.3

Note: ^aOf which, US\$2.68 million was from the Global Environment Facility–Least Developed Countries Fund.
Sources: IMF (2015c), ADB (2017c,d), World Bank (2017c,d).

In addition, Dominica and Vanuatu both received payouts under their regional parametric insurance schemes (see Box 1). Dominica received around US\$2.4 million (CCRIF 2015b), while Vanuatu received US\$1.9 million (PCRAFI 2016). Private sector insurance also covered US\$52 million of Pam-related damages in Vanuatu (IMF 2016b). Information on the private sector insurance payouts for Dominica was not available.

For the mammoth task of rebuilding after the devastating impact of Cyclone Pam, Vanuatu accessed a total of US\$98 million in concessional loans from the Asian Development Bank (ADB), World Bank and IMF, of which around 17 per cent contained a grant element (Table 8). Australia also provided around US\$26 million to support Vanuatu over three years (2015–18) (Australian Government 2017). Although Dominica is eligible for loans offered by the World Bank and the Caribbean Development Bank (see Table 6), Dominica did not access these facilities for reconstruction efforts after Hurricane Erika (CBD 2017; World Bank 2017e). Dominica accessed only US\$8.7 million from the IMF's Rapid Credit Facility and Rapid Financing Instrument (IMF 2015b). Dominica's lower borrowing pattern could be a result of its relatively high central government debt to GDP ratios prior to Hurricane Erika (84% in 2014 – see Figure 4), which limited further borrowing. Donor grants to finance reconstruction expenditure in Dominica were also below expectations (IMF 2016a). In addition, the IMF (2016a) had emphasised that Dominica should finance its

reconstruction activities within fiscally sustainable bounds. Vanuatu, on the other hand, had a significantly lower starting base prior to Cyclone Pam, with central government debt to GDP at 19 per cent in 2014 (see Figure 4).

Overall, it is estimated that while Vanuatu managed to raise total disaster finance of around US\$226 million, covering around 50 per cent of the total damages of Cyclone Pam, crude estimates for Dominica indicate that around US\$12 million was secured, covering around 2 per cent of the total damage from Hurricane Erika (Table 9). The latter figures, though, are probably significantly underestimated on account of the lack of public information on the financing flows for Hurricane Erika. Nevertheless, Vanuatu's relatively low central government debt levels before the cyclone, coupled with the government's broader access to ex-ante and, especially, ex-post financing instruments (see Sections 4.1 and 4.2) appears to be the catalyst for better meeting the financial impact of Cyclone Pam.

5.4 Recovery

By the end of 2016, both countries' economic growth had recovered after falling in 2015 (see Figure 1), on the back of the recovery in tourism and agriculture (IMF 2016a,b). The recovery in Dominica was not as strong as that in Vanuatu, as agricultural activities took longer to recover (IMF 2016a), while Vanuatu's recovery was also boosted by major public infrastructure projects (IMF 2016b).

Table 9 Summary of disaster finance (US\$ million)

	Dominica	Vanuatu
Rapid damage and needs assessment	482.8*	449.4**
<i>Ex-ante</i>		
Budget contingencies and reserve fund	–	2.7***
Parametric insurance	2.4†	1.9††
Traditional insurance	n.a.	52.0***
<i>Ex-post</i>		
Donor assistance (relief)	0.6 ^{b*}	44.0†††
Donor assistance (recovery and reconstruction)	n.a.	42.6 ^c
External credit	8.7‡	81.7 ^d
Budget reallocation	n.a.	0.9***
Total disaster finance (estimated)	11.7^e	225.8
Total disaster finance as % of damages (estimated)	2.4^e	44.5

Notes: These figures are estimates based on available public information as at the end of October 2017. ^aThe Vanuatu Government spent a total of US\$3.6 million, of which US\$230,000 was from the Emergency Disaster Fund and US\$2.5 million from budget contingencies, with the remainder from budget reallocation (US\$0.9 million). ^bProbably underestimated because of lack of public information on these flows. ^cGrants of US\$16.6 million (see Table 8) plus Australia's three-year recovery package of US\$26 million. ^dSee Table 8 for details. ^eProbably underestimated because of lack of information. n.a., not available.

Sources: *Dominica Government (2015e), **Vanuatu Government (2015d), ***IMF (2016b), †CCRIF (2015b), ††PCRAFI (2016), †††ODE (2017), ‡IMF (2015c).

Public debt as a percentage of GDP rose for both countries in 2016, with Vanuatu's public debt increasing from 26 to 34 per cent, while Dominica's public debt rose slightly from 86 to 88 per cent. The increase for Vanuatu was more pronounced than for Dominica, underpinned by the higher borrowing by Vanuatu after Cyclone Pam compared with Dominica (see previous section). Vanuatu's public debt is expected to continue to rise for several years up to an estimated 58 per cent of GDP in 2020, as the Vanuatu Government plans to intensify infrastructure investment (IMF 2016b). As a result, Vanuatu, which previously faced a low risk of debt distress, now faces a moderate risk of debt distress (IMF 2013b, 2016b).

In Dominica, at the time that Hurricane Erika struck, reforms were under way for public debt consolidation and to meet the ECCU target of 60 per cent by 2020. However, with the impact of Hurricane Erika, and weaker recovery prospects, there was concern that additional public debt

consolidation measures before 2021 could be counterproductive, particularly if consolidation crowded out investment for reconstruction (IMF 2016a). Dominica's current debt outlook is also dependent on the extent to which the government is able to secure donor grants for reconstruction, as well as on the performance of its Economic Citizenship Programme (IMF 2016a). Consequently, Dominica faces a high risk of debt distress in contrast to the previously moderate risk (IMF 2013a, 2016a).

Both countries' recovery prospects have, nevertheless, been derailed by recent natural disaster episodes. Dominica suffered considerably from the impact of Category 5 Hurricane Maria, which was probably even more substantial than Hurricane Erika, while Vanuatu had to undertake a massive relocation exercise of 11,000 people on account of the threat of the volcanic eruption on the island of Ambae.

6. Common Challenges and Lessons

This section draws out the common challenges and lessons from the experiences of Dominica and Vanuatu with disaster risk management and financing through the lens of their experiences with Cyclone Pam and Hurricane Erika.

6.1 Shared and unique national characteristics

Dominica and Vanuatu both characterise the common vulnerabilities that small states face, as well as the diversity that is also typical among small states. Both countries have similar physical island characteristics in terms of climate and vegetation, but, whereas Dominica consists of one island, Vanuatu is a group of around 80 islands. As a result of their island geography and locations in the Caribbean and the Pacific, respectively, both countries are highly vulnerable to multiple hazards, such as cyclones, earthquakes, flooding, volcanic activity and associated tsunami threats. They both have a long history of sustaining considerable losses from the impact of disasters, although Vanuatu has a higher risk of humanitarian crises and disasters than Dominica, based on the Index for Risk Management. Nevertheless, both countries are considered to have a high resilience to external shocks and are categorised as 'high vulnerable and high resilience' countries according to Briguglio's (2014) revised vulnerability/resilience framework.

There is also commonality and diversity in other aspects. Vanuatu's population is four times as many as Dominica's, with many ni-Vanuatu living in rural areas, while the majority of Dominicans live in urban areas. However, they are similar in that both countries have a young population, with women, children and youth among their most vulnerable inhabitants, particularly to the impact of disasters.

Their economies are also relatively similar in that they are both based on a narrow range of sectors, particularly tourism and agriculture. However, Vanuatu is endowed with more natural resources than Dominica, and its agricultural-based products and exports have helped it fare much better after the impact of the global financial crises.

As measured by standard income and development metrics, Dominica, an upper middle-income country, outperforms Vanuatu, a least developed country, in terms of income per capita and ranking on the Human Development Index. However, Vanuatu has much lower poverty and unemployment rates, as well as a strong traditional social safety net system, and has consistently ranked high in the Happy Planet Index Score.

In terms of governance, there are also similarities and differences. Both countries gained independence from the United Kingdom around the same time and they also have similar systems of government based on a unicameral parliament. Both governments are guided by national development plans, with similar priorities around socio-economic measures and the environment. Their local government arrangements reflect the urban concentration (Dominica) and rural spread (Vanuatu) of their populations. In addition, for Vanuatu, the state's reach is weak outside the urban centres and power is vested in churches and the traditional chiefly system. Corruption in government has also been more an issue for Vanuatu than for Dominica.

These national characteristics are important to bear in mind when considering the challenges and lessons learnt from the experiences of Vanuatu and Dominica with Cyclone Pam and Hurricane Erika, respectively. Although Category 5 Cyclone Pam was much more severe than Hurricane Erika, the impacts on Vanuatu and Dominica were similar in terms of damages and loss of life, which is a good basis for comparison.

6.2 Deconstructing the experiences of Cyclone Pam and Hurricane Erika

Normative disaster risk management frameworks and the public financial management of disasters are key to deconstructing the experiences of Vanuatu and Dominica in their response to and recovery from Cyclone Pam and Hurricane Erika,

respectively. These elements constitute crucial preconditions for withstanding natural disasters.

Despite both countries historically experiencing frequent and severe episodes of natural disasters, it appears that Vanuatu has made more effort to ensure that disaster risk reduction, not just disaster management, is firmly entrenched in its normative frameworks, including through its national development plan, legislation, policy frameworks and institutional architecture. Although the effective implementation of these frameworks is essential as well, the mainstreaming of disaster risk reduction and management is a strong signal of political will and priority, which are critical for public service delivery.

Cyclone Pam and Hurricane Erika tested both governments' disaster response systems. Both countries reacted in similar ways by triggering their disaster offices/coordinating bodies. They also had similar challenges, particularly around logistics and transportation, as well as coordination of efforts on the ground. However, in terms of learning from their experiences, while both countries conducted workshops to review the lessons learnt, only Vanuatu produced a detailed report with practical recommendations for the government to pursue. This is further evidence of Vanuatu's strong commitment to disaster risk reduction and management compared with Dominica. Hence, political direction and support is vital to ensuring a culture of building resilience.

For countries that frequently experience natural disasters, the financial challenge of rebuilding and reconstruction is often met with external borrowing and, as the country is continuously battered by disasters, debt servicing issues can become a problem if debt spirals out of control. This could then limit further borrowing in the event of future disasters. Therefore, a country's debt position is an important element in considering its ability to respond and recover from natural disasters. Additionally, ex-ante and ex-post disaster financing practices and arrangements are critical in reducing sovereign risk to disasters.

In both areas, Vanuatu had a better pre-disaster position than Dominica, as it had a significantly lower public debt to GDP ratio (26%, compared with Dominica's 86%), and had at its disposal a wider range of disaster financing instruments. These better pre-existing conditions meant that Vanuatu was better able to raise finance to meet

the total costs of Cyclone Pam. On the other hand, Dominica's pre-existing conditions limited its options and fell far short of meeting the total costs of Hurricane Erika, even though those costs have probably been underestimated.

Moreover, to Vanuatu's advantage, bilateral and multilateral donors were more responsive to its relief and reconstruction efforts than those of Dominica, where the government found it more difficult to secure donor grant funding. This is despite both countries being eligible for overseas development assistance (ODA),¹⁶ as well as having similar eligibility criteria for grants from IFIs (see Table 5). From a bilateral perspective, one of the reasons could be that Vanuatu has a much closer political relationship with its major bilateral donor, Australia, than the relationship between Dominica and Japan, its major bilateral donor. For multilateral IFIs, concerns over Dominica's debt situation could have hindered their response. These contrasting experiences reinforce the importance of ex-ante financing arrangements away from the reliance on unpredictable ex-post donor finance.

Nevertheless, both countries' economies have since rebounded from the impact of the disasters, with Vanuatu's recovery much stronger on the back of major public infrastructure projects financed by external loans. Vanuatu, however, now faces a moderate risk of debt distress (previously, this was low) from the increase in external borrowing after Cyclone Pam. Although Dominica's borrowing after Hurricane Erika was limited, this still pushed its risk of debt distress from moderate to high, including as a result of its already high public debt to GDP ratio.

However, by September 2017, both countries had to respond to yet another spate of disasters – Dominica to the destruction of Category 5 Hurricane Maria, while Vanuatu had to relocate 11,000 people as the result of the threat of a volcanic eruption on the island of Ambae. These recent events serve to emphasise the importance of having appropriate and effective disaster risk reduction and management practices in place.

6.3 Lessons for small states

There are three key lessons that can be drawn from the experiences of Vanuatu and Dominica with disaster risk reduction and management, especially around their response to and recovery from Cyclone Pam and Hurricane Erika, respectively.

- i *Strong macroeconomic foundations are important:* A strong and diversified economic base can mitigate the impact of natural disasters, while a sustainable debt position can provide more fiscal space for responding to natural disasters.
- ii *The mainstreaming and implementation of disaster risk reduction and management strategies is critical:* Ensuring that disaster risk assessments and reduction, not just preparedness and response planning, are entrenched in national planning, monitoring and evaluation practices is critical to responding and recovering from future natural disasters. It is also important that relevant legislation and regulations keep up with policy developments. This can also provide development partners with the confidence that disaster funds/finance will be effectively and efficiently spent.
- iii *Ex-ante financing arrangements are vital:* Given the unpredictability of ex-post financing, ensuring that ex-ante financing arrangements are in place will be crucial for reconstruction and rebuilding after natural disasters.

None of these lessons will come as a surprise to policy-makers and practitioners, but the experiences of Vanuatu and Dominica serve to underline these key fundamentals. These fundamentals are often widely acknowledged but more often than not are not put into practice. There are many reasons that might prevent the

implementation in practice, but the overarching cause is most probably a lack of political will, which is essentially an issue of governance at all levels, not just of national governance but also of regional and international governance.

It is well recognised that small states, as a result of their unique vulnerabilities, have limited capacity to deal with not just the impact of climate change and the increased severity and frequency of natural disasters, but also other social, economic and environmental challenges that face them. This means that regional and international support are critical in supporting small states.

With the rising number and scale of climate-related disasters, small states face growing challenges in disaster risk reduction and management. Hurricanes Irma and Maria devastated many of the Caribbean small states in September 2017. In response, led by a push from the UK, the Organisation for Economic Co-operation and Development (OECD), in October 2017, agreed to work on a process that could allow previous aid recipients (high-income countries) to receive short-term ODA support in the event of catastrophic crises, such as the recent hurricanes in the Caribbean (UK Government 2017). While this is no doubt a welcome and significant change in the global aid architecture, which will hopefully lead to better response from the donor community to the challenges of small states, there is still much more to be done to meet the existential challenge that small states face.

Endnotes

- 1 This paper benefited from in-country background research on Vanuatu conducted by Sarah Mecartney, independent consultant; and desk research conducted by Wonderful Hope Khonje, Economic Officer, Commonwealth Secretariat. Valuable comments were received from Andrew Colin Parker, Chief of the United Nations Children's Fund (UNICEF) Field Office, the United Nations (UN) Joint Presence Office in Vanuatu and the UN Area Security Coordinator from the United Nations Development Programme (UNDP); Emily Wilkinson, senior research fellow, Overseas Development Institute; Dr Scott Hook, Economic Adviser, Pacific Islands Forum Secretariat; Beverly Lugay, Economist, Eastern Caribbean Central Bank; officials from the Department of Foreign Affairs and Trade, Government of Australia; and colleagues from the Economic, Youth and Sustainable Development Directorate at the Commonwealth Secretariat, especially Howard Haughton, Quantitative Analyst, and Sanjana Zaman, Research Officer.
- 2 Vanuatu's geothermal potential for electricity production is under review with the support of the World Bank and New Zealand (Parker 2017).
- 3 Vanuatu also launched a Citizenship by Investment Program in 2017 (Global Citizenship Investment 2018).
- 4 Dominica's economy rebounded with assistance from the international community after the impact of Cyclone Dean in 2007. Prior to Cyclone Dean, Dominica had also implemented a successful reform programme under the International Monetary Fund's (IMF's) Poverty Reduction and Growth Facility, which concluded in 2006 (IMF 2008).
- 5 Vanuatu's strong economic performance was driven mainly by tourism, construction activities and aid inflows (IMF 2009).
- 6 The Carib Council governs the Carib territory, an area in the island's east set aside for the indigenous Carib people (CLGF 2015).
- 7 See <http://weltrisikobericht.de/english/>, accessed 19 September 2017.
- 8 INFORM, as the index is otherwise known, combines around 50 different indicators that measure hazards (events that could occur), vulnerability (the susceptibility of communities to those hazards) and capacity (resources available that can alleviate the impact). INFORM covers 191 countries and includes both natural and human hazards.
- 9 The ODM's 2015/16 budget allocation was 0.15 per cent of total government budgeted expenditure (Dominica Government 2015a,b). For the NDMO, its 2017 budget allocation was 0.18 per cent (Vanuatu Government 2017).
- 10 The VHT is convened by Oxfam and its members include the Vanuatu Red Cross, French Red Cross, Vanuatu Association of NGOs, UNICEF, Oxfam, CARE International, Save the Children Australia, the Adventist Development and Relief Agency, the World Health Organization, Peace Corps, World Vision and Act for Peace, the International Organization for Migration and the UN Office for the Coordination of Humanitarian Affairs.
- 11 There are clusters for logistics, shelter, food security and agriculture, education, health and nutrition, gender and protection, and water, sanitation and hygiene.
- 12 The exorbitant debt level was brought about by profligate fiscal policies and external shocks that thrust Dominica into an economic crisis in 2001–02 (IMF 2016c).

- 13 The ECCU is a group of eight island economies, including Dominica, that share the same currency – the Eastern Caribbean Dollar. The other countries are Anguilla, Antigua and Barbuda, Grenada, Montserrat, St Kitts and Nevis, Saint Lucia, and St Vincent and the Grenadines.
- 14 The FRANZ Arrangement was signed on 22 December 1992, whereby France, Australia and New Zealand agreed to coordinate disaster reconnaissance and relief assistance in the Pacific when requested by partner countries (Cook Islands, Fiji, Kiribati, Nauru, Niue, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu) (New Zealand Government, Ministry of Foreign Affairs and Trade 2014).
- 15 The IMF (2016b) reported that Vanuatu received about US\$72 million in grants in 2015, although some of this may be tied to loans (see Table 8), so the latest figures from ODE (2017) are preferred.
- 16 As per OECD (2017).

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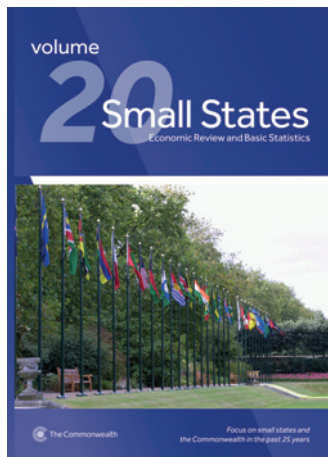
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Recent and Upcoming Publications

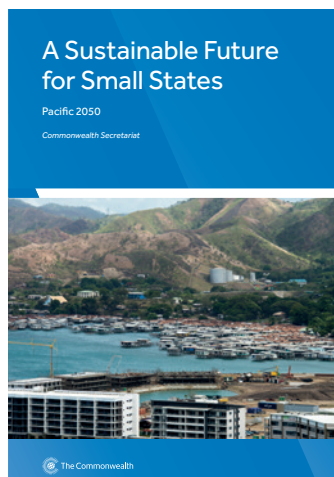
Small States: Economic Review and Basic Statistics, Volume 20



Small States: Economic Review and Basic Statistics is a flagship publication of the Commonwealth Secretariat highlighting the development indicators of small states and disseminating knowledge on their economic performance.

This milestone 20th volume looks back at the progress of small states over the past 25 years. It also takes stock of the Commonwealth Secretariat's contribution to the international discourse on small states and the development of the states themselves.

A Sustainable Future for Small States: Pacific 2050



Sustainable Future for Small States: Pacific 2050 is part of the Commonwealth Secretariat's regional strategic foresight programme that examines whether current development strategies set a region on a path to achieve sustainable development by 2050.

The study analyses whether Commonwealth Pacific small states (Fiji, Kiribati, Nauru, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu) will achieve the Sustainable Development Goals. It reviews critical areas that can serve as a catalyst for change in the region: governance (examining political governance, development effectiveness and co-ordination, and ocean governance); non-communicable diseases; information and communications technology and climate change (focussing on migration and climate change, and energy issues).

In each of these areas, possible trajectories to 2050 are explored, gaps in the current policy responses are identified, and recommendations are offered to steer the region towards the Pacific Vision of 'a region of peace, harmony, security, social inclusion, and prosperity, so that all Pacific people can lead free, healthy, and productive lives'.