



# ADVANCING DISASTER RISK FINANCE IN SINT MAARTEN

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## ABBREVIATIONS AND ACRONYMS

<b>AAL</b>	Average Annual Loss	<b>MoF</b>	Ministry of Finance
<b>BAK</b>	Department of Interior and Kingdom Relations	<b>NRPB</b>	National Recovery Program Bureau
<b>Cat DDO</b>	Catastrophe Deferred Drawdown Option	<b>OCTs</b>	Overseas Countries and Territories
<b>CBCS</b>	Central Bank of Curaçao and Sint Maarten	<b>PFM</b>	Public Financial Management
<b>CCRIF SPC</b>	Caribbean Catastrophe Risk Insurance Facility Segregated Portfolio Company	<b>SCDM</b>	Disaster Management Steering Committee
<b>CDF</b>	Country Directed Fund	<b>SIDS</b>	Small Island Developing States
<b>CDRP</b>	Country Disaster Risk Profile	<b>SOP</b>	Standard Operating Procedure
<b>CERC</b>	Contingent Emergency Response Component	<b>SXM</b>	Sint Maarten
<b>COA</b>	Chart of Accounts	<b>TEATT</b>	Ministry of Tourism, Economic Affairs, Transport, and Telecommunications
<b>DaLA</b>	Damage and Loss Assessment	<b>UNECLAC</b>	United Nations Economic Commission for Latin America and the Caribbean
<b>DRF</b>	Disaster Risk Finance	<b>VROMI</b>	Ministry of Public Housing, Spatial Planning, Environment, and Infrastructure (Volhuisvesting, Ruimtelijke Ordening en Milieu)
<b>DRFIP</b>	Disaster Risk Financing and Insurance Program		
<b>DRM</b>	Disaster Risk Management		
<b>DRR</b>	Disaster Risk Reduction		
<b>ESF</b>	Emergency Support Function		
<b>GDP</b>	Gross Domestic Product		
<b>GFDRR</b>	Global Facility for Disaster Risk Reduction		
<b>GoSXM</b>	Government of Sint Maarten		
<b>IDP</b>	International Development Partner		
<b>IMF</b>	International Monetary Fund		
<b>LPP</b>	Livelihood Protection Policy		

# Glossary

**Contingent liabilities:** These are obligations that may or may not come due, depending on whether particular events occur. The probability of their occurrence may be exogenous to government policies (for example, if they are related to natural disasters) or endogenous (for example, if government programs create moral hazard).

**Explicit contingent liabilities:** These are specific obligations created by law or contract that governments must settle.

**Implicit contingent liabilities:** Represent moral obligations or burdens that, although not legally binding, are likely to be borne by governments because of public expectations or political pressures.

**Damage:** Total or partial destruction of physical assets existing in an affected area. Note: Damage occurs during and immediately after a disaster and is measured in the replacement value of assets (based on, for example, the percentage of housing damaged and kilometers of roads).

**Disaster risk financing (DRF) strategies:** Strategies to protect governments, businesses, and households from the economic burden of disasters. Note: DRF strategies can include programs to increase the financial capacity of a state to respond to a disaster impact or an emergency while protecting the fiscal balance. They can also promote deepening insurance markets at a sovereign and household level and social protection strategies for the poorest.

For example, the Livelihood Protection Policy (LPP) in Jamaica insures low-income individuals from wind and excess rain, and the Government of Grenada disburses National Insurance Scheme (NIS) funds in response to post-disaster short-term unemployment.

**Exceedance probability:** Probability that a given loss from an event will be equaled or exceeded.

**Economic loss:** Total economic impact that consists of direct economic loss and indirect economic loss.

**Direct economic loss:** The monetary value of disaster damages. For example, Hurricane Dean caused damages in Jamaica in 2007, with direct economic losses that amounted to US\$62 million (J\$8 billion) in public assets.

**Indirect economic loss:** Monetary value of the consequence of direct economic loss and/or human and environmental impacts. Indirect economic loss includes microeconomic impacts (for example, revenue declines from business interruption); mesoeconomic impacts (for example, revenue declines from supply chain impact or temporary unemployment); and macroeconomic impacts (for example, price increases or increases in government debt). Indirect economic losses can occur inside or outside the hazard area and often with a time lag.

For example, the indirect losses caused by Hurricane Dean in 2007 in Jamaica amounted to US\$267 million (J\$34 billion). Adding the direct economic losses of US\$62 million (J\$8 billion), Hurricane Dean accounted for US\$329 million (J\$42 billion) in economic loss.

**Facultative reinsurance:** A type of reinsurance contract that covers a single risk. Facultative reinsurance is one of the two types of reinsurance contract transaction, with the other type being treaty reinsurance. Facultative reinsurance is considered to be more transaction-based than treaty reinsurance.

**Fiscal risk:** The possibility of deviations in fiscal variables from what was expected at the time of a budget or other forecast. Fiscal risks include macroeconomic shocks and contingent liabilities. For example, Jamaica has high fiscal risks of disasters. Losses modeled by the Caribbean Catastrophe Risk Insurance Facility (CCRIF) for tropical cyclone events show that a 1-in-100-year event could result in an economic loss of at least US\$3 billion (J\$386 billion).

**Mean return period/rate of occurrence:** Estimate the likelihood of the loss due to a particular event, such as a particular amount of loss from a hurricane or earthquake. It is also the reciprocal of the rate of occurrence of a loss. If the loss associated with a given hurricane wind speed has a 0.01 annual rate of occurrence, the return period is equal to  $1 / 0.01 = 100$  years. This does not imply that the loss from a wind speed will be exceeded exactly once every 100 years, but rather that the average time between exceedances is 100 years.

**Risk reduction:** Measures taken before a disaster aimed at decreasing or eliminating its impact on society and the environment.

**Parametric insurance:** Payout is made based on the occurrence of an event, not the magnitude of the resulting loss. Trigger mechanisms must be devised to determine whether such an event has occurred and if payment under a parametric insurance contract is required. Triggers may be based on the following:

**A pure parametric nature:** Trigger is based solely on weather recordings such as wind speed or rainfall amount (for example, the LPP is a policy launched in Jamaica, St. Lucia, and Grenada that insures low-income individuals from wind and excess rain).

**A parametric index or model:** Trigger is based on a formula, index, or model as a proxy for the actual event (for example, in the case of the Caribbean Catastrophe Risk Insurance Facility Segregated Portfolio Company [CCRIF SPC], payouts are proportional to the estimated impact of an event on each country's budget. The estimated impact is derived from a probabilistic catastrophe risk model developed specifically for the facility).

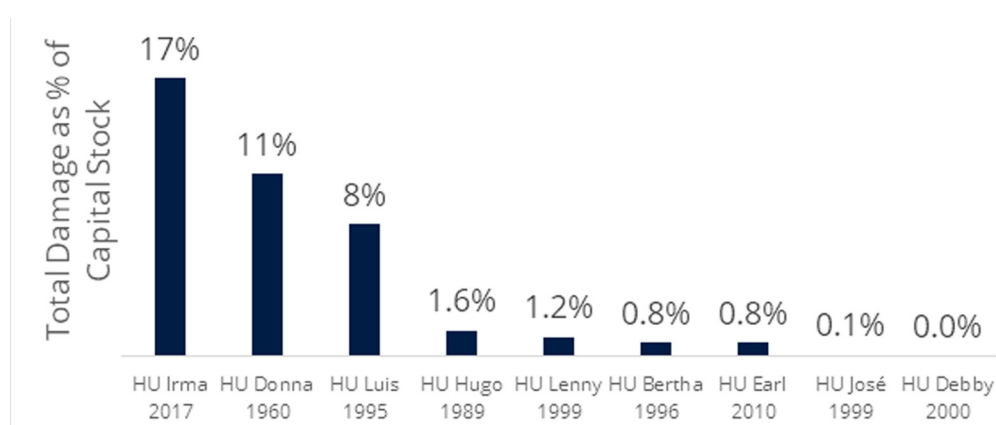
**Proportional insurance:** The reinsurer, in return for a predetermined portion or share of the insurance premium charged by the ceding company, indemnifies the ceding company against a predetermined portion of the losses and loss adjustment expenses of the ceding company under the covered insurance contract or contracts.

## Executive Summary

The objective of this report is to provide recommendations to the Government of Sint Maarten (GoSXM) for the formulation of a country-specific comprehensive disaster risk financing (DRF) strategy based on the assessment of the legislative, financial management, fiscal, and insurance market environment in Sint Maarten (SXM). It is envisioned that this report will be used as a planning tool for the potential development of an all-encompassing DRF strategy that would equip the GoSXM with information and instruments to manage contingent liabilities posed by disasters.

Historical losses due to hurricanes have been significant in SXM since 1960, with the most severe impact having been experienced in 2017 following Hurricane Irma (Figure 1).

Figure 1. Historical Losses due to Major Hurricanes in SXM since 1960



Source: World Bank.

On average, in the long term, the GoSXM would need to cover losses of approximately US\$42.3 million annually—3.6 percent of SXM’s gross domestic product (GDP)—to address its contingent liabilities related to hurricanes. For earthquakes, the average annual loss (AAL) is further estimated at US\$6.3 million (0.5 percent of GDP). These could be relief expenditures, lost revenue, road and bridge reconstruction, public school and hospital reconstruction, or any other relief or reconstruction expenditure that the government is responsible for after a disaster.

Table 1. Hazard Risk - Probabilistic Losses

	Hurricanes	Earthquakes
AAL	US\$42.3 million (3.6% of GDP)	US\$6.3 million (0.5% of GDP)
Probable maximum loss (PML) for 200-year return period event	US\$1.5 billion (127% of GDP)	US\$271.2 million (23% of GDP)

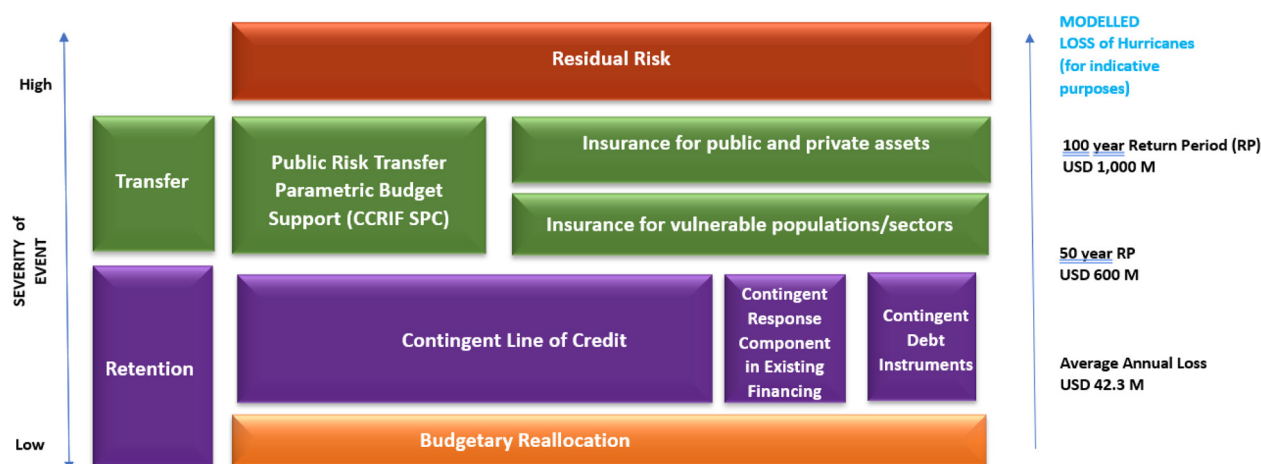
Source: Sint Maarten Country Disaster Risk Profile (CDRP), World Bank 2022.



**In addition to predictable losses related to hydrometeorological events, SXM also faces much less predictable but still catastrophic risks from tsunamis, health emergencies, and other exogenous shocks.** This requires all financial response strategies to be flexible and responsive and build on the existing robust data systems and financial processes. In 2020, the COVID-19 pandemic triggered a fall in government revenues in SXM, which increased the demand for health care and social support, thus putting pressure on social services and health systems and increasing the vulnerability of at-risk groups. Additionally, the pandemic resulted in 88 deaths in SXM.

**This report presents recommendations for a cost-effective DRF strategy in SXM, drawing heavily on international experience, country-specific information, and similar profiles of small island developing states (SIDS).** These complementary resources for a national DRF strategy are based on a preliminary fiscal risk analysis and a review of SXM’s current budget management of disasters. The report reflects the World Bank’s extensive international experience and the comprehensive approach as outlined in the Operational Disaster Risk Financing and Insurance Framework<sup>1</sup> (Annex 3). The World Bank has assisted several countries (Belize, Colombia, Grenada, Fiji, Indonesia, Jamaica, Mexico, Pakistan, the Philippines, Saint Lucia, Samoa, the Solomon Islands, Sri Lanka, Tonga, Vanuatu, and Vietnam) in the design and implementation of sovereign catastrophe risk financing strategies. This report presents a tailored approach that addresses SXM’s institutional, social, and economic characteristics.

Figure 2. Recommended Risk Layering Strategy for the GoSXM



Source: Author’s analysis.

**This report presents options for a combination of new, existing, and refurbished risk retention and risk transfer instruments that could help the GoSXM increase its immediate financial response capacity and better protect its fiscal balance.** In this regard, the report builds on the three-tier risk layering approach for low-, medium-, and high-frequency events as promoted by the World Bank; GoSXM’s fiscal constraints; the current legislative environment; SXM’s insurance sector capacity; and a cost-benefit analysis tailored to SXM’s disaster risk profile. Table 2 presents the recommended instruments for a comprehensive risk financing strategy.

1. Mahul, Olivier, et al. 2014. Financial Protection against Natural Disasters: From Products to Comprehensive Strategies - An Operational Framework for Disaster Risk Financing and Insurance. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/523011468129274796/Financial-protection-against-natural-disasters-from-products-to-comprehensive-strategies-an-operational-framework-for-disaster-risk-financing-and-insurance>.

While SXM holds a considerably different risk profile compared to the other four constituent countries of the Kingdom of the Netherlands, its recent experience with natural events and the resulting impetus to develop DRF places it in a leading role among the CAS<sup>2</sup> islands to advance interisland collaboration.

*Table 2. Recommended Instruments and Policy Actions*

Time Frame		Instruments and Strategy Recommendations for DRF
<b>Sovereign Protection</b>		
Short Term ( $< 1$ year)	1	Streamline and institutionalize loss and damage data collection and reporting system for all severities of events.
	2	Explicitly address contingent liabilities/fiscal risks arising from natural hazards in the GoSXM's fiscal legislation and regulations.
	3	Detail standard operating procedures (SOPs) for estimating economic losses from direct and indirect shocks.
	4	Consider capitalizing and earmarking a provision of a contingencies fund for natural hazard response—consistent with the AAL of hurricane events (US\$42.3 million).
	5	Start seeking access to a contingent line of credit that covers contingent liabilities of prominent events of at least a 10-year return period.
	6	Optimize sovereign parametric insurance (such as the Caribbean Catastrophe Risk Insurance Facility Segregated Portfolio Company [CCRIF SPC]) coverage to include existing immediate liquidity gaps.
	7	Adopt a national strategy for DRF and a subsequent implementation plan.
	8	Develop and institutionalize disaster-responsive Post-Disaster Budget Execution Guidelines.
	9	Ensure that existing capital projects have contingent emergency response components (CERCs) that can redirect uncommitted financing to emergency needs.
Medium Term (1–3 years)	10	Develop a risk-based asset management system based on a comprehensive inventory of public fixed assets.
	11	Institutionalize guidelines for centralized public procurement of insurance to achieve cost efficiency and economies of scale to the extent possible.
	12	Investigate the viability of earmarking a designated levy on tourism to capitalize on a disaster and resiliency fund.
	13	Improve the Chart of Accounts (COA) by integrating disaster management and climate change considerations to enable and improve tracking of disaster-related expenditures.
	14	Develop or subscribe to a livelihood protection mechanism for vulnerable populations such as fisherfolk, small business owners, and self-employed workers active in tourism or supportive of that sector.
	15	Strengthen technical capacity for DRF within the Ministry of Finance (MoF) and Ministry of General Affairs, including on parametric insurance policies.
<b>Commercial Insurance</b>		

2. CAS = Curaçao, Aruba, and Sint Maarten.

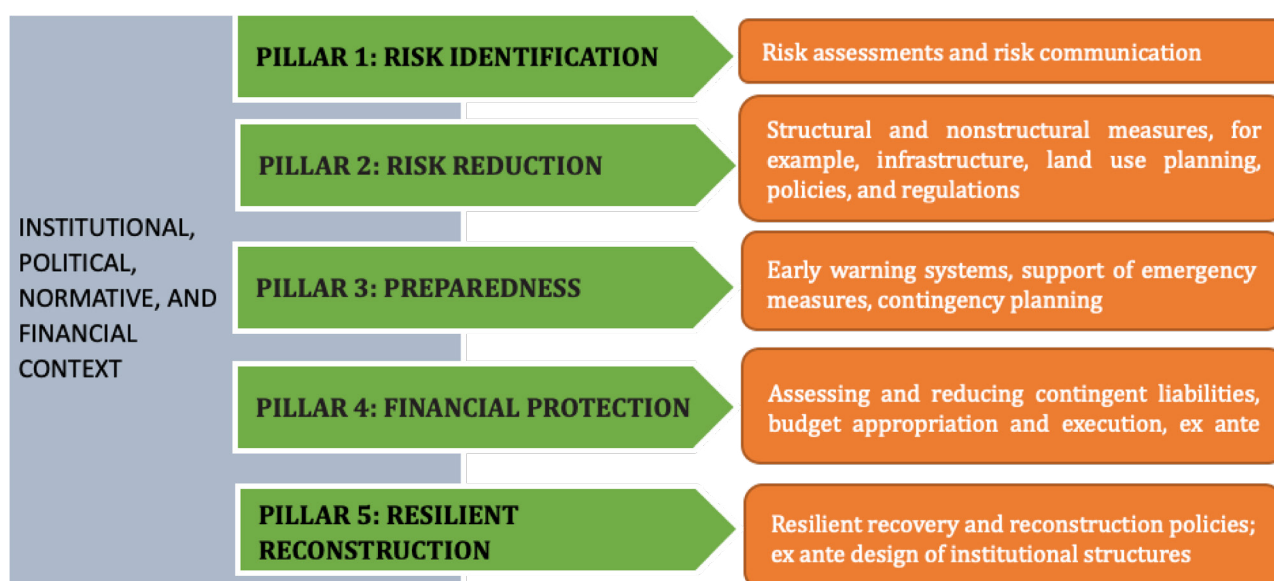
Short Term (< 1 year)	16	Strengthen transparency and consumer protection, the preconditions for increased demand.
	17	Explore opportunities for the public sector to encourage the public to understand better and appreciate insurance.
	18	Disaggregate insurance data collected by the supervisor (the Central Bank of Curaçao and Sint Maarten [CBCS]) and currently consolidated for both countries, including premium volumes, claims payments, profits, assets, and liabilities for SXM.
	19	Assess the barriers to and the potential of inclusive and other sector-specific insurance.

## Chapter 1. Introduction

### 1.1. Brief Presentation of the Theoretical Framework of Disaster Risk Finance

Financial management of disaster risk is an element of Priority 3 of the Sendai Framework 2015–2030<sup>3</sup> and is part of the Strategic Framework for Comprehensive Risk Management of Disasters developed by the World Bank.<sup>4</sup> This report defines the five pillars of a disaster risk management (DRM) strategy (Figure 3). It assumes that while a country cannot escape the risk of natural hazards, it can significantly and efficiently reduce its vulnerability and exposure to risks. Thus, to reverse the current trend of increasing impacts from natural disasters, it is necessary to integrate risk management into development plans and public and private investment, both locally and nationally.

Figure 3. Strategic Pillars of DRM Developed by the World Bank



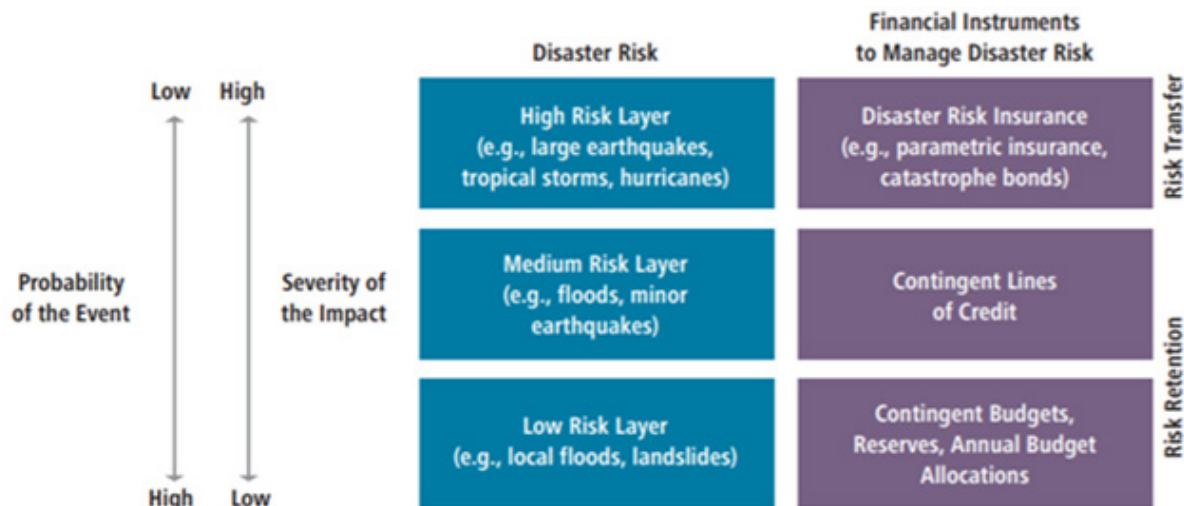
Source: World Bank and Global Facility for Disaster Reduction and Recovery (GFDRR), Sendai Framework

3. The Sendai Framework for Disaster Risk Reduction 2015–2030 was adopted by 187 states and international actors in March 2015 and establishes a road map and priorities for disaster risk reduction (DRR).

4. This report details the disaster management framework developed by the World Bank. <https://www.gfdr.org/sites/default/files/publication/sendai-report.pdf>.

It is important to note that the Disaster Risk Finance Technical Assistance (DRFTA) Project on which this report is based focuses solely on the financial protection pillar. However, it does not lessen the need to strengthen the other dimensions of integrated risk management, including the prevention component that is crucial for Sint Maarten (SXM). The DRFTA Project is part of the broader partnership with the Government of Sint Maarten (GoSXM) on DRM and climate change adaptation.

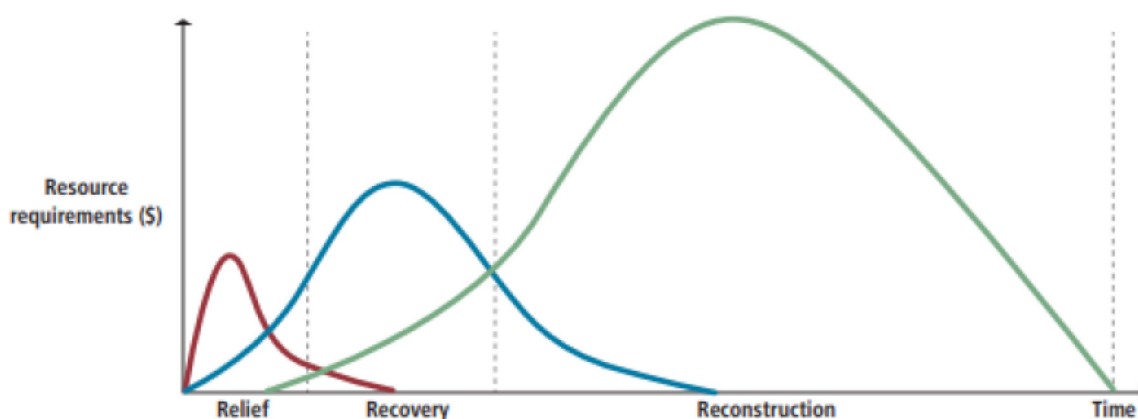
Figure 4. Most Cost-Effective Financial Instruments for Different Types of Risk



Source: World Bank.

**A temporal dimension is the second key factor to be considered in forming a cost-effective DRF strategy.** Indeed, a government might not use all the funds needed for recovery in the days following a disaster (Figure 4). Immediate resources are necessary to carry out emergency operations. Ensuring that these resources are available and that operations can be carried out quickly is crucial to stabilize the human, social, or even economic impact of a disaster. However, it is only after a few months, sometimes even a few years, that the financial needs will be maximized to address reconstruction works.

Figure 5: Temporal Dimension of Post-Disaster Finance Needs



Source: World Bank.

**The third factor concerns the legal and administrative aspects.** Funds and financing mechanisms must be put in place, and payments must be made at the required times. This step is vital for the financial strategy to meet GoSXM’s needs effectively. In many cases, efforts to secure funds quickly after a disaster are hampered by the multiple administrative steps required for the responsible institution to appropriate

resources and execute operations. In other cases, oversight of the use of public resources is suspended, and the lack of transparency often results in losses when resources are already low. Similarly, some governments take out parametric insurance before realizing after a disaster that the payments would be treated as non-tax revenues and would therefore be transferred to the treasury, thus generating delays in the execution of emergency and recovery operations. Although often overlooked, this legal and administrative dimension needs to be addressed with particular attention so that the risk financing strategy is effective.

## 1.2. Brief Introduction of the Case of a DRF Strategy in Sint Maarten

**Sint Maarten is at the front line of climate change impacts, and related hydrometeorological events are expected to increase in frequency and severity.** The hazard profile of SXM is dominated by tropical weather, though risks of earthquakes and other geophysical events are ever-present. In 2017, SXM was devastated by Hurricane Irma, followed by Hurricane Maria, with damages estimated at US\$1,370,697,000, decimating critical infrastructure and destroying private homes and businesses. Since then, the economy of SXM and other areas within the private sector have been struggling to ‘bounce back’ to the previous state of business.

**Evaluations of Hurricanes Irma and Maria’s response efforts reveal that there is a need to strengthen the disaster management system of SXM to ensure adequate mitigation, planning, response, and coordination for future events.** The GoSXM continues to strive to improve DRM through its understanding of hazard risk, governance of DRM, operational and preparedness capacities, cost-effective financing of disaster response, and the capacity for resilient reconstruction. Furthermore, the GoSXM recognizes and acknowledges the need to mainstream DRM for sustainable development and resilience of SXM and has therefore established a Disaster Management Steering Committee (SCDM) to institutionalize DRM and the long-term development thereof. The SCDM consists of the Secretary General of the Ministry of General Affairs, the National Disaster Coordinator, the Section Head of Disaster Management, and the Department of Interior and Kingdom Relations (BAK).

**In its Strategic Framework 2019–2025<sup>5</sup>, the World Bank estimated that the fallout from Hurricane Irma would result in a public sector deficit of approximately US\$145 million for 2017–2020 and that liquidity support through the ‘standing subscription’<sup>6</sup> arrangement would be needed from the Kingdom of the Netherlands.** In response to Hurricane Irma, the Kingdom of the Netherlands made resources amounting to US\$600 million available to the GoSXM to help expedite post-Irma recovery.<sup>7</sup> The National Recovery Program Bureau (NRPB) was to support the implementation of the trust fund through the preparation, coordination, execution, and evaluation of projects.

**Compounding the economic impact of natural disasters, COVID-19 further undermined the recovery.** In its June 2021 Article IV Consultation Report, the International Monetary Fund (IMF) indicated that the growth outlook for SXM is subject to significant uncertainty and risks. COVID-19 was still a significant issue given the low vaccination rates on the island, and “natural disasters – particularly hurricanes in Sint Maarten – could also undermine the recovery.”<sup>8</sup> Also contributing to the outlook is the issue of liquidity support<sup>9</sup> for the budget in terms of the impact that delays in the provision of this support could have on SXM.

5. World Bank. 2019. Strategic Framework 2019–2025: Sint Maarten Reconstruction, Recovery and Resilience Trust Fund. p 6.

6. The ‘standing subscription’ arrangement refers to an agreement or understanding between the World Bank and the Kingdom of the Netherlands. Under this arrangement, the Kingdom of the Netherlands commits to providing liquidity support or financial assistance to address the deficit resulting from the fallout of Hurricane Irma.

7. De Hamer, Joey. 2019. Disaster Governance on St. Maarten: A study on How Disaster Governance in Combination with St. Maarten’s Development Affected the Disaster Response in the Wake of Hurricane Irma. p 2.

8. <https://www.imf.org/en/News/Articles/2021/06/22/mcs062221-curacao-and-sint-maarten-staff-concluding-statement-of-the-2021-article-iv-mission>.

9. Liquidity support refers to financial assistance or funding provided to address budgetary shortfalls or to ensure that the government has sufficient funds to meet its obligations. In the context of SXM, liquidity support could come from sources such as the Kingdom of the Netherlands or international financial institutions like the IMF.

**Uncertainty relating to economic support from the Netherlands also poses a significant risk as cessation would result in fiscal adjustment—further fiscal consolidation that could further dampen the buoyancy of real gross domestic product (GDP) growth.** The IMF’s press release states, “Liquidity support should be planned in a way that ensures adequate contingency buffers.”<sup>10</sup> Though it recognizes the need for fiscal adjustment, the IMF calls for growth-friendly fiscal adjustment and continued support from the Netherlands to provide the necessary financing. Implicitly, the IMF also calls for the development of fiscal rules to ensure that any agreement with the Netherlands for future financing is locked in through a Fiscal Responsibility Framework, for example, as improvements in public financial management (PFM) are key for regaining fiscal sustainability.<sup>11</sup>

**SXM faces a significant challenge ahead to improve PFM and find alternatives to the shortfall that exists between the available fiscal space and its overall recovery and resilience needs while maintaining day-to-day operations.** In its Financial Recovery Plan (FRP) 2018–2022,<sup>12</sup> the Government committed to improving PFM. The objectives of the FRP included restructuring and recovering during 2018–2019, reaching a balanced budget in 2020, and reducing budget deficits from 2021 onward.<sup>13</sup> From 2021, the Government intended to achieve a budget surplus of 3 percent of GDP and amend the National Accountability Ordinance (NAO) to achieve the fiscal surplus position.<sup>14</sup> Around 40 percent of the surplus was to partially redeem loans, and another 20 percent was to form a liquidity buffer for first response in times of possible future disasters in implementing the IMF Article IV Report recommendation of 2018.<sup>15</sup> The 20 percent liquidity buffer is important because it aligns with the World Bank’s imperative to assist the Government in creating a fiscal buffer. Table 3 provides details of the projected GDP and fiscal surplus and the incremental amounts to build up a liquidity buffer of US\$55.3 million (NAF 99 million) (approximately 23 percent of the target) by 2027.

*Table 3. Projected GDP and Fiscal Surplus<sup>16</sup>*

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
<b>Estimated GDP (in million NAF)</b>	1,755	1,781	1,808	1,835	1,835	1,862	1,890	1,919	1,948	1,977
<b>Projected budget surplus</b>	—	-88.4	-16.4	48.5	64.8	70.0	70.0	75.0	80.0	85.0
<b>20% of budget surplus</b>	—	—	—	10	13	14	14	15	16	17

Source: FRP 2018–2022.

10. Ibid.

11. IMF. 2021. Staff Concluding Statement of 2021 Article IV Mission for Curaçao and Sint Maarten.

12. GoSXM. 2018. Working towards a Sustainable Financial Future for Sint Maarten: Our Financial Recovery Plan (FRP), 2018–2022.

13. GoSXM 2018, 12.

14. GoSXM 2018, 14

15. Ibid.

16. FRP 2018, Table 1, p 16; Table 2, p 18.

# Chapter 2. Public Financial Management of Disaster Risk

## 2.1. Overall Legislative and Institutional Framework for DRM

**The National Ordinance Disaster Risk Reduction (Landsverordening Rampenbestrijding: AB 2013, GT no. 7 - AB 2015, no. 9), passed on October 30, 2000, contains regulations that must lead to optimum preparation and, in the occurrence of a disaster, to combat the effects and consequences efficiently.** Article 2 states that the Minister of General Affairs has the responsibility of preparing for disaster prevention. Article 8 further stipulates that the Minister of General Affairs has the supreme command in the event of a disaster or serious fear of its occurrence and is to evaluate the disaster within six months of its occurrence and inform the Parliament on the results of the evaluation.<sup>17</sup>

**Article 3 of the National Ordinance Disaster Risk Reduction contains the obligation to adopt a Disaster Management Plan by National Decree containing general measures.** A Disaster Management Plan was established by National Decree (Rampenplan Sint Maarten: AB 2013, GT no. 150).<sup>18</sup> Sub-plans are to be prepared by small, specialized teams, called the ESF groups, in consultation with the fire department and the disaster response coordinator, and the operational leader is the head of the fire department unless otherwise indicated by the minister. The costs arising from the tasks of the EFS groups should be financed from the budget of the responsible service or sector. Article 3 of the National Ordinance Disaster Risk Reduction further stipulates that the Disaster Management Plan is to be aligned with the contingency plan of the Collectivité de Saint-Martin and is to be updated on an annual basis.

**Strengthening fiscal management, including budget preparation, implementation, and accountability capabilities, is needed to ensure efficient recovery and resilience.** In 2018, the Ombudsman of SXM<sup>19</sup> conducted an inquiry on the preparedness of the GoSXM pursuant to the National Ordinance and the Disaster Management Plan after the hurricanes of September 2017. It concluded that the structural absence of vital documents, among which sub-plans by the ESF groups, seriously impede the state of readiness of the country in the midst of upcoming hurricane seasons.<sup>20</sup>

## 2.2. Legislative Framework for Disaster Risk Financing

The three main legislative instruments that provide a PFM framework in which disaster risk financing (DRF) can be operationalized by the GoSXM are the 2010 Constitution of SXM, NAO of 2010 (Comptabiliteitslandsverordening), and the Consensus Kingdom Law on Financial Supervision for Curaçao and Sint Maarten.

17. National Ordinance Disaster Risk Reduction (Landsverordening Rampenbestrijding: AB 2013, GT no. 7 - AB 2015, no. 9) <https://decentrale.regelgeving.overheid.nl/cvdr/XHTMLoutput/Actueel/Sint%20Maarten/206085.html>

18. The Disaster Management Plan was established by National Decree (Rampenplan Sint Maarten: AB 2013, GT no. 150) <http://decentrale.regelgeving.overheid.nl/cvdr/xhtmloutput/Actueel/Sint%20Maarten/207446.html>

19. The core task of the Ombudsman, a High Council of the State of Sint Maarten, is the handling of complaints filed by the public against a government body, including government entities charged with public authority. The Ombudsman is limited to the authority outlined in the National Ordinance Ombudsman (AB 2013 no.20). <http://www.ombudsmansxm.com/page.php?page=3>.

20. The Ombudsman systemic investigation regarding the Disaster Management Plan. <http://www.ombudsmansxm.com/download.php?id=2&file=2018%2008%2007%20FR%202018%2000035%20Disaster%20Management.pdf&type=doc>.

## The Constitution of Sint Maarten 2010

**The Sint Maarten Constitution of December 20, 2010, created bodies and functions in support of PFM.** Article 69 of the Constitution of Sint Maarten provides for a Council of Advice,<sup>21</sup> which gives advice to the Government on PFM and fiscal policy-related bills and draft national ordinances, among other matters.<sup>22</sup>The Constitution also provides for a General Audit Chamber, which is responsible for conducting due diligence on SXM's revenues and expenditures to determine both efficacy and legitimacy.<sup>23</sup>

**The Constitution defines what constitutes legal regulations, including national ordinances, in SXM.**<sup>24</sup> Before a national ordinance can be introduced to the Parliament, the Government must present it to the Council of Advice. Draft national ordinances are ratified by the Government after approval by the Parliament. The Parliament can also propose draft national ordinances to the Government, but these must first also be presented to the Council of Advice before they can be debated.<sup>25</sup> Draft national ordinances concerning the budget, taxation, and draft Kingdom legislation are three of the five exceptions for which referenda cannot be conducted despite the existence of a constitutional basis on which to conduct referenda.<sup>26</sup>

**Article 100 defines the process of approving the annual budget, including that post-disaster expenditures should be managed and planned for.** It articulates that “The annual budget and the long-term budget shall be balanced. If necessary, in connection with the recovery of damages caused by exceptional events, including natural disasters, departures from the first sentence are possible, in accordance with rules issued by or pursuant to a Kingdom Act or national ordinance.” This escape clause to a balanced budget highlights the importance of consistently applying fiscal rules that account for fiscal risks and contingent liabilities—both explicit and implicit—that could undermine fiscal sustainability. Approval of such rules in national ordinances necessitates the specification of triggers, the fiscal space for deviations, the period of suspension, the mechanisms for validating the triggers and fiscal deviations, and the required correction mechanisms toward long-term fiscal sustainability.

**Any eventual disaster response and recovery activity financed through monetary loans in the name of the GoSXM is subject to regulations outlined in Article 102.** Article 102 is important for a DRF strategy because it outlines how the Government can enter into loan agreements. Most countries that have DRF strategies partially fund their disaster response and recovery through loans. However, the Consensus Kingdom Law on Financial Supervision for Curaçao and Sint Maarten allows only borrowing for capital investments. Therefore, the possibilities of what the standing subscription already offers could be explored when it comes to the recovery and reconstruction of infrastructure (i.e., capital investments). Furthermore, the possibility could be explored to adjust the supervision framework to make use of the standing subscription in the event of disasters, including for current expenses.

**Limits on debt amortization placed in Article 102.2 are a de jure fiscal rule for debt accumulation by the Government.** To further avoid debt accumulation, as a disaster recovery approach, fiscal rules that more explicitly include a debt ceiling as a percent of GDP can be considered. As a benchmark in the Caribbean region, the 60 percent debt-to-GDP ratio is often used as the threshold for sustainability. This does not preclude the consideration of a more ambitious target, below the 60 percent threshold, which can be aimed at as a long-term fiscal sustainability goal.

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21. There is a separate and related National Ordinance for the Council of Advice known as the National Ordinance Socio-Economic Council of December 20, 2010.

22. See Articles 69.2, 69.3, and 69.5 of the Constitution of Sint Maarten.

23. See Article 74 of the Constitution of Sint Maarten.

24. See Articles 81, 82, 83, and 84 of the Constitution of Sint Maarten.

25. See article 85 of the Constitution of Sint Maarten. The Council of Advice plays a pivotal role in terms of being a conduit between the Government and the Parliament.

26. See Articles 92 and 94 of the Constitution of Sint Maarten.



**The differentiation of government debt accumulation arising from guarantees and contingent liabilities is necessary to enact better-tailored quantitative target.** As a guiding principle, the central government should shun incurring guarantees and curtail these to state-owned enterprises for whom the need is well articulated through their audited annual financial statements,<sup>27</sup> which provide a breakdown of their liquidity position and assets relative to liabilities, among other important financial standards.

## National Accountability Ordinance 2010

**The NAO establishes the parameters under which budgeting takes place within the GoSXM.** The NAO applies to the public sector<sup>28</sup> as it outlines how the central government and state-owned enterprises are to operate regarding their respective financial operations and preparation of standard financial documentation, including annual financial statements. While the NAO does not explicitly refer to supplementary estimates, it outlines how changes to the budget are to be implemented.<sup>29</sup> Such changes must occur through the mechanism of a national ordinance and can occur only at fixed times during the year. It is preferable that these changes are submitted on August 15 or November 15 of each year, in relation to the changes needed for the current year's budget, with the Minister of Finance's memorandum to the Parliament.<sup>30</sup>

**The NAO includes provisions for public procurement of goods, services, and works.**<sup>31</sup> The use of public tender is authorized with established ceilings above which public tender occurs. Public tender is not required for goods and services procurement that does not exceed US\$28,000 (ANG 50,000). Similarly, no public tender is required for works procurement that does not exceed US\$84,000 (ANG 150,000). There is an implicit emergency procurement clause. The established ceilings in Article 47.3 can be derogated in the event of a natural disaster by national decree.<sup>32</sup> The NAO does not separately refer to insurance or public procurement of insurance as a service.

**The NAO recognizes that the implementation of policies has financial implications and therefore provides for the integration of policy and budgeting.** A DRF Policy has financial implications because it must identify the quantum of resources needed to provide a reasonable fiscal response to the disaster as well as the sources of financing, which may be a combination of own revenues and loans. Article 10.1 states that "In the explanatory memorandum of a draft national ordinance, national decree, containing general measures, or ministerial regulation with which new policy intentions or pledges are developed with regard to the policy to be pursued, a separate section shall be included, reporting the financial consequences for and the cover by the country." This provision reflects cognizance of the reality that a policy without the necessary financing can have no impact; it takes expenditure to implement policy.

## The Consensus Kingdom Law on Financial Supervision for Curaçao and Sint Maarten

**The Consensus Kingdom Law on Financial Supervision for Curaçao and Sint Maarten, since the new constitutional arrangements took effect on October 10, 2010, provides the then-instated board of financial supervision with the mandate to strive for sustainable PFM in SXM.** The Consensus Law stipulates, among other things, that the government can only borrow to invest, not to finance current expenses. This implies that all current spending must be covered by current revenue and that no deficit is allowed on the operating balance of the government.

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27. Accrual accounting is prescribed in Article 26 of the NAO.

28. See Article 1 of NAO 2010.

29. See Article 49 of NAO 2010.

30. See Article 44 of NAO 2010.

31. See Article 47 of NAO 2010.

32. See Article 47.4 (a) of NAO 2010.

**Article 25 of the Consensus Kingdom Law on Financial Supervision delineates possible deviations following damages due to extraordinary events, including disasters, placing the authority to do so with the Council of Ministers of the Kingdom of the Netherlands.** Where urgency necessitates timely interventions, and no contact is possible with the chairman of the Council of Ministers of the Kingdom, the article further provides the board with the option to enter into obligations that may deviate from the budget implementation.

## 2.3. Existing and Potential Disaster Risk Financing Instruments

### Risk Retention Instruments

#### Contingent Budget Provision

**SXM does not currently have a contingent budget provision for disaster response.** However, within the annual fiscal budget allocation of 2019, it includes budget line items related to DRM (for example, there are line items for 'Nood Rampen' (unofficial translation = Emergency Disasters) and 'Calamiteitenbestrijding' (unofficial translation = Emergency response).<sup>33</sup>

**The establishment of a budgetary provision can be pursued through a national ordinance** and linked to the main budgetary fund to create a buffer for unforeseen events that require expenditure that was not previously approved as part of the annual budget. It is common practice to create these provisions in government budgets that are essentially unfunded line items where committed budgetary resources can be reallocated for disaster response expenditures. Such an instrument would require subsequent regulation to define the relative size or parameters of the provision, for example, no more than 2 percent of revenues each year.

#### Contingent Reserve Fund

**A reserve fund for natural hazard response can be the ideal instrument** to address short-term disaster expenditure needs rather than the imprest account or the use of advances. The contingency fund should have a fast disbursement mechanism and should be further capitalized and regulated as a vehicle for the rapid financing of public post-disaster reconstruction operations. Recent experience shows that obtaining funding for post-disaster reconstruction activities in SXM is often done by reallocating already committed funding, thereby delaying or canceling planned maintenance or development activities. If the GoSXM is to implement a dedicated contingency fund to respond to disasters, it would need to enshrine these provisions in law and put in place additional safeguards to ensure that its use is prescribed by law.

This fund would also require a national ordinance to legitimize it, and the ordinance could serve as the governance framework of the fund with regard to sources of capitalization, rules of use, and investment, among other things. More than one fund can be created should there be the need to dedicate the fund for specific purposes.

**The GoSXM maintained the reserve fund before 2010 with an allocation of ANG 250,000.** Internal procedures to tap into the fund included an assessment of the total damage or cost involved with the disaster. The Executive Council had to approve payments from the fund's escrow account. From 2010 to 2017, SXM financed disaster response primarily from its revenues, for example, with Hurricane Omar. However, the total devastation caused by Hurricane Irma resulted in a deficit that is yet to be cleared.

33. National Ordinance stipulating the Budget for Country of Sint Maarten for the service year 2019 (National Ordinance Budget 2019) (Parliamentary Year 2018-2019-126).  
<http://www.sxmparliament.org/documents/national-ordinances/zj-2018-2019-126/>.  
<http://www.sxmparliament.org/wp-content/uploads/2019/09/IS-666-dd-04mrt2019-Gov.-Ontwerplandsverordening-tot-Vaststelling-Begroting-2019.pdf>.  
<http://www.sxmparliament.org/wp-content/uploads/2019/09/99-Budget-2019-Getallenboek.pdf>

**A budget surplus is one of the potential financing sources for a disaster reserve fund.** The extent to which the projections are credible is indicative of the capitalization constraints for disaster funds as well as the need to diversify sources, including an earmarked amount from tourism revenues. In 2018, the tourism sector contributed approximately 85 percent of all national revenues.<sup>34</sup> The impact of a decline in tourism earnings had budgetary implications, as the original 2018 projected of US\$268 million was reduced to US\$180 million as a result of the economic fallout generally, and specifically in the tourism sector. If the fund is to be partly funded by tax income, the earmarked tax income would have to be approved through a national ordinance.<sup>35</sup> This involves several steps. An absolute majority is required both to propose such an ordinance and approve it. This is a mechanism that can also be enacted to give effect to other disaster funds since the source of funding may have both revenue and expenditure implications for the annual budget.

**The size of the fund should be informed by hazard risk quantification.** The risk profile, further discussed in Chapter 3, which includes both residential and nonresidential buildings, estimates US\$42.3 million as the average annual loss (AAL) of hurricanes. A proxy of 30 percent (US\$12.7 million) can be used to estimate public sector losses. This US\$12.7 million is an estimate of the government's AAL from hurricane events. Thus, when using the risk layering approach described earlier, the government would be advised to have access to immediate liquidity, typically through a reserve fund or dedicated contingency budget line, at the minimum amount of US\$12.7million to cover its losses in any given year—from hurricane events alone. This minimum amount would be recommended for countries with limited fiscal space or a moderately high-risk appetite. This is equal to roughly one-half of SXM's monthly expenditures. Low-risk, high-frequency events are most cost-effectively dealt with through contingency funds or enough cash liquidity on hand to avoid reallocating funds from existing government programs and further delaying development goals. Such a reserve fund would also be tapped for moderate to severe events to cover emergency losses while other funds are mobilized

## Contingent Line of Credit

**Due to the status of SXM as an autonomous constituent country of the Kingdom of the Netherlands, it is not directly eligible for several existing contingent lines of credit in the region, for example, the World Bank's Catastrophe Deferred Drawdown Option (CAT DDO) or the Interamerican Development Bank's Contingent Credit Facility.** This contrasts with other small states in the Caribbean, which can access contingent financing in the case of disasters while supporting the country's reform program to build multi-sectoral resilience to disasters and climate risk.

**The modality of a contingent line of credit, however, could offer a financial instrument template for European partners to assist SXM and other Dutch Caribbean Overseas Countries and Territories (OCTs) to secure timely access funds in advance of disaster impacts.** Such a financing product could help the Dutch Caribbean OCTs cover urgent financing needs that arise immediately after a disaster and better incentivize disaster and climate risk management policies.

**As a concrete and fairly quick product to establish, a contingent line of credit can be a low-hanging fruit for the GoSXM to implement together with European partners as it is building a comprehensive financial protection strategy.** While the borrowing country is usually required to implement a comprehensive DRM program, in the case of SXM, such a program is already required under the landspakket conditionality with the Kingdom of the Netherlands, which is monitored on a periodic basis. A contingent line of credit facilitates rapid disbursement of funds for medium- to high-intensity natural disasters that would exhaust a reserve fund. While taking on contingent financing does increase public debt, there is an argument for increasing spending in times of a temporary economic shock such as a natural disaster. Basic economic theory notes that a country should adjust to a permanent negative shock and cut spending, but if the shock is temporary, it can be financed and paid back later. In practice, however, policy makers face the extraordinarily difficult situation of needing to assess the permanency of a shock in real-time.

34. De Hamer. 2019, 1.

35. See Article 99 of the Constitution.

## Contingent Emergency Response Components in Capital Project Financing

Ongoing and new projects financed under the Sint Maarten Recovery, Reconstruction, and Resilience Trust Fund could be equipped with an agreement that funds can be re-programmed for disaster response if needed. The contingent emergency response component (CERC), for example, is a World Bank project component that is designed to provide a swift response in the event of an eligible crisis or emergency, defined as “an event that has caused, or is likely to imminently cause, a major adverse economic and/or social impact associated with natural or man-made crises or disasters.” The CERC is one of the World Bank’s contingent financing mechanisms available to borrowers to gain rapid access to World Bank financing to respond to a crisis or emergency. As part of a comprehensive DRM strategy, the CERC typically provides support for immediate rehabilitation and reconstruction needs. Including a CERC in a project minimizes the time and effort needed to make uncommitted funds from an Investment Project Financing (IPF) available to finance urgent needs in the event of a crisis or emergency. This is achieved by defining all key aspects of the CERC as fully as possible during the original project’s preparation and by supporting the borrower to maintain readiness for CERC activation and implementation throughout the project’s life.

## Risk Transfer Instruments

### Caribbean Catastrophe Risk Insurance Facility Segregated Portfolio Company

**SXM has purchased parametric hurricane and excess rainfall coverage through the Caribbean Catastrophe Risk Insurance Facility Segregated Portfolio Company (CCRIF SPC) since 2019**, a regional risk pool for Caribbean governments designed to limit the financial impact of disasters by quickly providing financial liquidity when a policy is triggered. A risk transfer mechanism such as CCRIF is most cost-effective for medium-to-high-severity events. The CCRIF SPC offers parametric insurance that relies on a payout disbursement contingent on the predefined loss threshold of an event. SXM is currently modestly covered for tropical cyclones, earthquakes, and excess rainfall, with a maximum payout of US\$25 million for qualifying wind and rain events. Also, under the current agreement with the CCRIF SPC, the ceding percentage (that is, the amount of risk ceded to the international market) is low for the excess rainfall policy and moderately low for hurricanes. This underscores the need to optimize or increase CCRIF coverage while introducing new and flexible financial instruments, such as those mentioned in some of the recommendations in this chapter, so that the GoSXM can get better value for money. The three CCRIF SPC policies to which the GoCD subscribes are enablers of short- to medium-term fiscal sustainability because these policies, once triggered, provide budget support quickly. It is recommended that CCRIF coverage be optimized to better serve the GoCD’s needs and realities, at least until a reserve fund is efficiently capitalized and operationalized.

## Insurance of Public and Private Sector

**Consolidating public procurement for insurance policies geared toward disaster events through an Insurance Committee within the GoSXM provides an avenue for streamlining the adoption and maximizing the effectiveness of insurance instruments within the public sector.** The Ministry of General Affairs is responsible for public procurement of insurance. However, given that most of the assets are the remit of the Ministry of Education, there were plans for the ministry to administer its own insurance procurement. What is needed is not fragmentation of insurance procurement but rather consolidation to achieve cost efficiency and economies of scale to the extent possible. Insurance against disaster risk must be an integral plank of a DRF Policy and/or strategy, especially to increase the level of risk transfer.

**It is important that the government and the insurance industry together tackle the issues of expanding the penetration of property insurance against disasters and making insurance accessible to vulnerable populations.** Acting alone, the insurance industry may focus on short-term profitability and shield itself from hard-to-address risks in vulnerable populations. On the other hand, if the public sector worked alone, products might not be as efficient, and protection could be costly. The GoSXM also faces the risk of implementing policies that compete with or reduce the incentives to purchase insurance. A partnership between the domestic insurance sector and the government can reduce and manage ex-ante risks, adapt to the needs of different sectors of society, and lead to sound policy-making and DRF decisions.<sup>36</sup> SXM would benefit from exploring livelihood protection insurance such as the Livelihood Protection Policy (LPP) or the Caribbean Oceans and Aquaculture Sustainability Facility and other innovative insurance products developed by the CCRIF SPC, as well as other smaller initiatives from the private sector in the region.

**Shock-responsive social protection systems can be financed by payouts from risk transfer instruments.** Emerging examples in the region should be learned from and built upon to develop more predictable and sustainable links between risk financing instruments and social protection. Flexible social protection systems that are disaster-triggered and linked to DRM systems and contingent financing have the potential to reduce the administrative and financial burden of governments when responding to disasters. Cash assistance programs can be administratively and logistically cumbersome, and identifying affected people is time-consuming and often inefficient, particularly in the aftermath of a disaster, and funds can take too long to reach those with immediate needs. Scalable programs with built-in risk mitigation and risk financing mechanisms can respond quickly to beneficiary needs within existing systems. These programs provide immediate assistance to poor people; protect development gains by preventing people from falling back into poverty after a disaster; and promote shared prosperity through better targeting by focusing on underlying factors affecting inequality, such as gender.

## 2.4. Current Context for Disaster Management in the Government of Sint Maarten

### Disaster Governance

**Disaster governance is increasingly applicable to overseas territories because of the potential for climate change to increase the frequency and severity of disaster events.** The destructive impacts of Hurricane Irma catalyzed efforts toward DRM and governance reforms.

## 2.5. The PFM Framework for Disaster Risk Financing

### Ministerial Responsibility for aspects of Disaster Risk Management

**DRM is well-legislated, though it focuses largely on post-disaster response operations, with questions remaining as to how ESFs (a) identify and quantify risk and (b) finance post-disaster response and Disaster Management Plan(s).** In the event of a disaster, the Crisis Management Office, which is under the purview of the Ministry of General Affairs, is the central point of coordination and information. The Crisis Management Office has its own budget to employ public servants dedicated to DRM. The Minister of General Affairs is charged with preparing for disaster prevention. The calamity ordinance of SXM requires the existence of a contingency plan. The contingency plan specifies which services, in the event of a disaster, perform which tasks and in what way, to ensure effective limitation and response to a disaster. In case of a disaster, a Steering Committee is set up to ensure that the recovery works run smoothly.

36. Ramm, G. 2011. "Public-Private Partnerships in Microinsurance." Discussion Paper 001, Microinsurance Network, Luxembourg.

**The Ministry of General Affairs maintains the public asset registry.** This registry can benefit from improvements in asset valuation, increasing the number of assets covered, and geolocation of public assets, but public asset management is not treated within the Financial Accountability Ordinance. The majority of insurance policies for the central government, including CCRIF, are centrally procured and managed under the Ministry of General Affairs. Since 2020, however, the Ministry of Education, Culture, Youth, and Sports (MECYS) has been budgeting for insurance.<sup>37</sup> All assets from school boards are covered under the general insurance policy and make up the bulk of GoSXM'S fixed assets. At the time of writing this report, a new insurance committee was to be formed based on a decree from the Council of Ministers, to be led by MECYS, which intended to revisit insurance coverage for public assets. Under the new arrangement, the Ministry of General Affairs would retain the mandate over a part of the insurance budget, but there appears to be a shift to a more decentralized approach. Rehabilitation and retrofitting of the existing, currently uninhabited buildings could reduce government costs by decreasing rental payments, building resiliency in a pool of government assets, and increasing insurance coverage for public assets. An inventory of public assets is also the first step in accounting for the GoSXM's contingent liabilities in budgetary planning.

A georeferenced inventory of public assets at risk and their attributes (for example, exact location, construction type, and number of stories) is also a key component in building an exposure database, which is integrated with hazard and vulnerability models to establish a fiscal disaster risk profile. Generally, the more accurate the inventory is, the more accurate the fiscal risk assessment. Data to construct the inventory can be collected from various sources such as government agencies, universities, research centers, international organizations, and statistics institutions. As the exposure database identifies what assets need to be protected, the GoSXM unit responsible for purchasing property insurance could be best suited to maintain the database. To better understand the collected information, the GoSXM may choose to standardize and house the information on an open-source web-based platform and make it accessible to all stakeholders.

Upgrading the database maintained by the Ministry of General Affairs in line with the standard damage and loss assessment (DaLA) methodology across ministries is recommended, along with guidelines on how and when to enter information. This would allow line agencies, as well as local authorities, to report damage and losses easily. It would also enable other ministries, including the Ministry of Finance (MoF) and Ministry of Public Housing, Spatial Planning, Environment, and Infrastructure (Volshuisvesting, Ruimtelijke Ordening en Milieu, VROMI), to access critical information for recovery planning and reconstruction and retrofitting of existing infrastructure. Such a database would also be useful in substantiating appeals to donors, for example, the Kingdom of the Netherlands. Although this initiative could be launched in the short term, a comprehensive database might take time to be fully completed. Historical damage and loss data are crucial for accurate disaster risk analysis. Historical data are important components of disaster risk assessment and actuarial analysis and thus play a significant role in the development of DRM strategies and financing instruments.

**VROMI is responsible for public works, transportation and logistics, pre-disaster mitigation and resilience, and post-disaster relief and response.** VROMI has a separate budget from disaster management under the Ministry of General Affairs. VROMI does not deal with reconstruction and rehabilitation. However, it is to be noted that VROMI collaborates or cooperates with other entities within the government, for example, the Ministry of Education. Even though VROMI's budget is not included as part of disaster management, it is 'on-budget'; there are particular Chart of Accounts (COA) codes that can be used to track disaster events and/or related activities within VROMI's budget.

**VROMI is involved with both high-impact and low-impact events.** Post-Hurricane Irma, VROMI has had a more substantial role. For low-impact events, a maximum budget of US\$336,000 (NAFL 600,000) is allocated. For high-impact events, this can be higher as in 2017, post-Hurricane Irma, there was a budget of US\$560,000 (NAFL 1,000,000). These amounts are separate from administration costs. The general 'cleanup budget' is a line item. There is a regular cleaning (reserves/reservation) fund for cleanup after disasters.

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37. In 2022, it will be an official line item.

## Identifying What the Disaster Management Budget Entails

**Post-disaster financing and the disaster management budget within the GoSXM have been largely reactionary.** Historically, the Government had goals of achieving budget neutrality by ministries making adjustments to finance response within the respective allocations through movements between line items. After Hurricane Irma in 2017, budgets had deficits due to the significant impact. In general, line items related to disaster management increased after Hurricane Irma, using project codes mainly. However, although a line item is present, there might not be an allocation due to deficits. It is, therefore, possible to track expenditure in terms of everything Irma-related and COVID-19 if it is described appropriately and if the expenditure passes through the budget.

**The Government's budget is the primary tool that allows the Government to respond to disaster impacts.** The various types of financing for disaster response—whether own revenues, loans, or grants—should be reflected in and traceable through the budget. The use of the COA codes that allow for discernment of disaster-related expenditure is an important element of tracking disaster expenditure and developing a typology of the financial response relative to the type of event.

**The extent to which disaster management expenditures fully capture what was actually spent due to 'on-budget' and 'off-budget' expenditures acknowledged is not clear from budget scrutiny.** The Public Expenditure and Financial Accountability (PEFA) Assessment criteria recommend that all expenditures, including financial support from international development partners (IDPs), be tracked using the COA. Tracking disaster expenditures allows for better decision-making on future disaster management expenditures, greater accountability, greater transparency, and cost-effectiveness of DRM expenditures. Without such tracking, when one objectively analyzes the budget, what is extracted and analyzed is an understatement of the real cost of disasters.

**Relief items and financial and technical support received by most IDPs and nongovernmental organizations (NGOs) are not captured in SXM's national budget, nor are they legally required to be accounted for in the budget.** Off-budget amounts are reflected as a negative because the Government did not actually receive the funds. Negative balances are an accommodation within the budget to deal with disaster expenditure. 'Negative' means overdraft, but there is no evidence that the funds are later reconciled.

**Another area of concern is grants from NGOs.** These funds should go through the MoF. It is important to clarify whether these funds actually go through the national budget and become 'on-budget' or if they are received by the MoF but remain 'off-budget.' Other entities manage funds (external agencies), but the MoF performs an administrative function in that it has to approve the invoices for payment. So even if those resources were 'off-budget,' the MoF should still have a budget for the 'off-budget' expenditure because it has to approve the expenditures or the invoices for payment. A simple way to deal with all the off-budget expenditure, which undervalues the fiscal response to disasters, is to establish in law, through NAO 2010, that all expenditure on behalf of the Government must flow through the national budget and be accounted for.

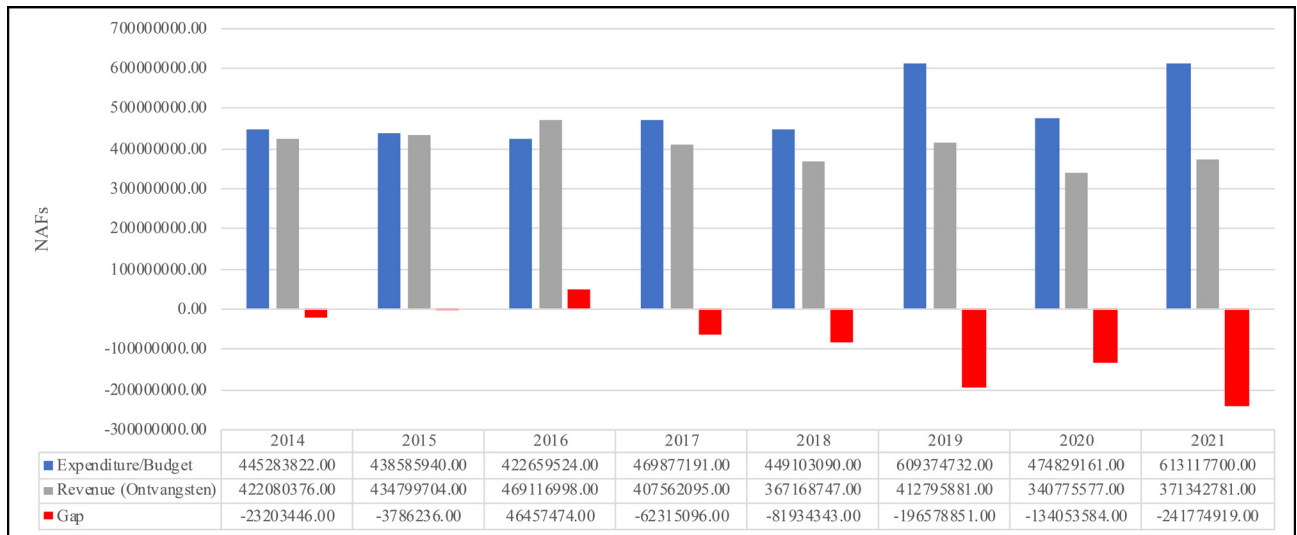
### 2.6. Budgetary Analysis of Disaster Expenditure

**The budget reveals that since Hurricane Irma in September 2017, the Government has struggled to achieve revenue sufficiency.**<sup>38</sup> Although the Government had deficits for two of the three service or fiscal years before Hurricane Irma, the situation was exacerbated in the aftermath of the disaster. Given that the Government, in its FRP 2018–2022, signaled its intent to use budget surpluses to create reserves, this presents a challenge not only for building up reserves to create a fiscal buffer but also for overall fiscal sustainability. Figure 6 provides an overview of the fiscal gap between actual expenditure and actual revenues for 2014–2021.<sup>39</sup>

38. This is revenue adequate to finance expenditure needs.

39. The years 2014–2020 are actuals but 2021 is an estimate.

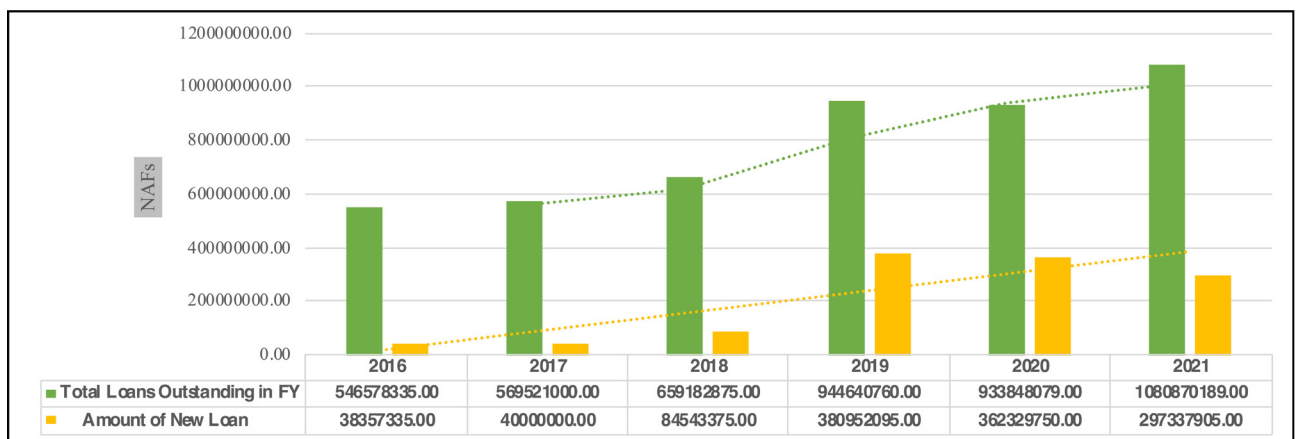
Figure 6. Fiscal Gaps in GoSXM's Budget, Service Years 2014–2021



Source: Author's calculations and GoSXM's Concept Begroting for Service (and Calendar) Years 2014–2021.

**The passage of Hurricane Irma created additional fiscal pressures for the GoSXM.** The reduction in revenues created the need for liquidity support, mainly through loans. Total outstanding loans increased after the disaster, and interest costs rose. Figure 7 depicts the difference between total outstanding loans—the entire stock of loans—and the amount of new loans since 2016.

Figure 7. GoSXM Total Outstanding Loans Relative to New Loans, Service Years 2016–2021



Source: Author's calculations and GoSXM's Concept Begroting for Service (and Calendar) Years 2016–2021.

## Chart of Accounts

**The COA allows for identifying property insurance expenditure, which is a small portion of the national budget.** Insurance expenditure over 2014–2021 represents, on average, less than 1 percent (0.6 percent) of the national budget of SXM. There are two broad categories of insurance: the majority of insurance expenditure is for building insurance (74.5 percent), followed by vehicle insurance (19.4 percent).

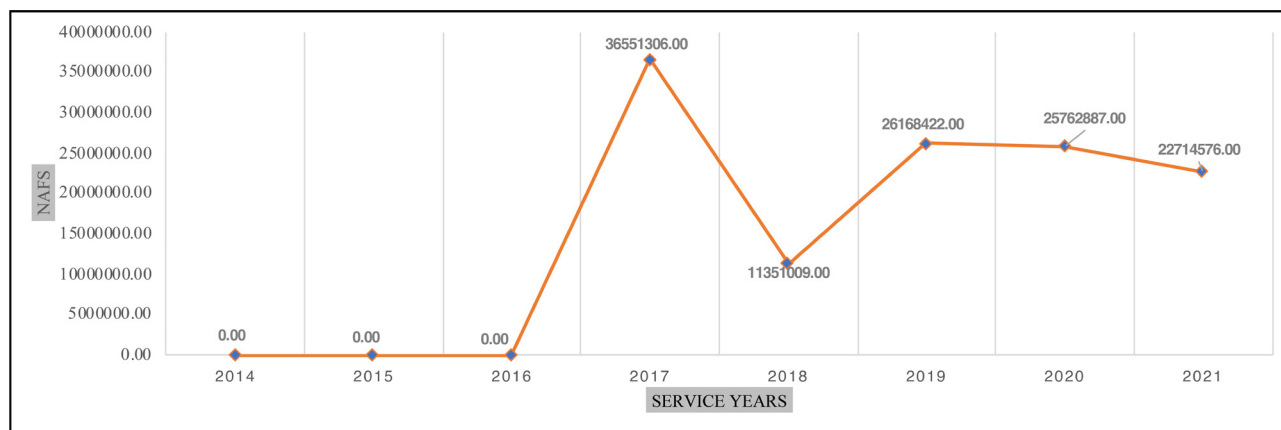


**The budget of the GoSXM facilitates a rudimentary method to track disaster-related expenditures using the COA codes adopted in 2010.** SXM's financial management system, which is linked to its COA, should allow for the extraction of a DRM budget before and after events. Currently, codes and sub-codes allow for tracking disaster-related expenditures, but they are not used consistently across ministries. Standard use of the codes can be promoted by a policy decision to give the project or activity code uniformly across all ministries. Such a policy should also state that all funding, including disaster management, should go through the budget. For example, report preparation noted that the Prime Minister's Office undertakes disaster spending, but its expenditure is not traceable. The GoSXM has a 'calamity account' that could ostensibly track post-disaster expenditure.

**The 'calamity budget' allows for tracking of disaster expenditure using the COA codes.** For 2016–2021, US\$68 million was traceable through the Government's budget. There are four ministries under which these data can be tracked: MECYS; the Ministry of Public Health, Social Development, and Labour; the Ministry of Tourism, Economic Affairs, Transport, and Telecommunications (TEATT); and VROMI. Around 94.3 percent of the total calamity budget was allocated to VROMI, followed by Public Health (3.2 percent), MECYS (2.7 percent), and TEATT (0.1 percent). The 0.1 percent allocated to TEATT was due to COVID-19. Disaster expenditure is traceable through approximately 14 codes and sub-codes.<sup>40</sup>

**The calamity budget was highest in 2017, the year of Hurricane Irma.** After a decline in 2018, the calamity budget increased in 2019 and remained almost at the same level in 2020. Although the 2020 data are affected by COVID-19, the impact is still not at the level of expenditure commensurate with 2017. The two patterns combined demonstrate how economic recovery can be exacerbated by multiple disaster events occurring within a relatively short time frame. The 2017 calamity budget was almost 30 percent of the envelope for 2016–2021. However, in 2019, 2020, and 2021, the share of the total calamity budget for the period was 21.4 percent, 21.0 percent, and 18.5 percent, respectively.

Figure 8. Calamity Budget of the GoSXM (NAF)



Source: Author's calculations and the GoSXM's Concept Begroting for Service (and Calendar) Years 2014–2021.

**No expenditure related to disasters or the calamity budget was traceable during that period under the MoF, unlike most other Caribbean countries' governments.** A possible explanation is the absence of either contingencies or reserve funds. MoFs are typically expected to deal with the fiscal adjustments required to respond to disasters—whether through reallocations or insurance payouts that go to the main budget fund. Within the context of DRF, MoFs play a lead role, given their central role in fiscal risk management, for example, by quantifying fiscal risks, including contingent liabilities and debt management.

40. The main codes and sub-codes under which the expenditures fall are 43512-906 (43.3 percent) and 43512-30025 (43.3 percent). The five identified codes are 41003, 43425, 43495, 43512, and 43517. The sub-codes are 905, 906, 909, 910, 912, 913, 00013, 30025, and 70041.

**The fiscal response to a disaster is always a small proportion of damage and loss estimates.** The damage caused by Hurricane Irma was approximately NAF 3,749.76 million. The productive sector suffered the most (58.3 percent of damage and losses), followed by the social sector (27.3 percent of damage and losses).

*Figure 9. Damage and Loss Estimates from the Impact of Hurricane Irma on SXM<sup>41</sup>*

Sector	US\$ millions						Total	NAF
	Damage	%	Losses	%	Additional Costs	%		
Infrastructure	202.10	19.3%	79.3	8.0%	11.2	21.1%	292.60	525.22
Productive	343.40	32.7%	866.3	87.7%	9.1	17.2%	1218.80	2187.75
Social	502.10	47.9%	36.6	3.7%	32.5	61.4%	571.20	1025.30
Environment	1.00	0.1%	5.3	0.5%	0.1	0.2%	6.40	11.49
<b>Total US\$</b>	<b>1048.60</b>	<b>100%</b>	<b>987.50</b>	<b>100%</b>	<b>52.90</b>	<b>100%</b>	<b>2089.00</b>	<b>3749.76</b>

Source: United Nations Economic Commission for Latin America and the Caribbean (UNECLAC) 2018.

**The Government's budget only accounts for 3.3 percent of the fiscal accommodation or fiscal response based on the applicable COA codes.** This number is low and can probably be attributed to the level of off-budget financing that occurs.

41. UNECLAC. 2018. Irma and Maria by Numbers. Focus: Magazine of the Caribbean Development and Cooperation Committee (CDCC). p 9. <https://repositorio.cepal.org/bitstream/handle/11362/43446/1/FOCUSIssue1Jan-Mar2018.pdf>.

## CHAPTER 3: FISCAL DISASTER RISK ASSESSMENT

### 3.1 Fiscal Disaster Risk Modeling

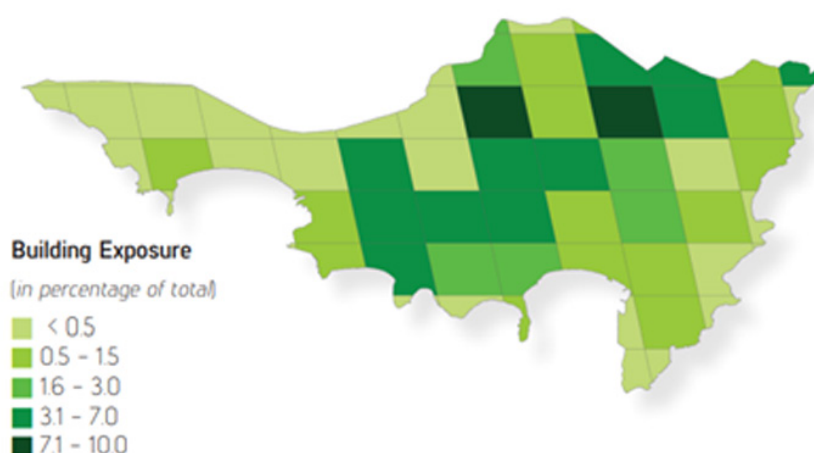
**The quantification of fiscal risks linked to disasters, including the government's contingent liabilities, is the first step in devising a cost-effective DRF strategy.** Ideally, such an assessment requires merging historical loss data analysis and modeled losses derived from natural catastrophe risk models. This chapter aims to inform the GoSXM of the levels of risk it faces and facilitate discussions on how it can become more resilient to current and future risks based on systematic collation and analysis of key baseline data.<sup>42</sup>

**An initial assessment of the government's contingent liability associated with disasters indicates that it faces a major financing challenge arising from natural catastrophes.** Hurricanes are a major driver of risk, causing an estimated total annual economic impact of US\$42.3 million, equivalent to 3.6 percent of the national GDP. However, simulations show that a major hurricane event with a return period of 100 years could cause losses in excess of US\$1,000 million, which equals about 85 percent of the national GDP.<sup>43</sup>

#### 3.1. Fiscal Disaster Risk Modeling

**SXM's Country Disaster Risk Profile (CDRP), developed by the World Bank in 2021, presents country- and province-level probabilistic disaster risk profiles to provide risk assessments and estimates of potential damage to buildings caused by hurricanes<sup>44</sup> and earthquakes.<sup>45</sup>** Traditionally, sophisticated global building inventory exposure models for use in natural hazard risk assessments are held within the private sector, usually, the reinsurance industry and catastrophe risk modeling agencies; these models, databases, and methods are proprietary and not freely or openly available to the public sector. They also concentrate on building stock and do not explicitly address the fiscal exposure of a government, which is important for the public sector to quantify its sovereign disaster risk.

Figure 10: Building Exposure by Province



Source: World Bank CDRP.

42. Any modeled results provided are the expression of a view on possible loss experience, and they should not be taken as predictive of specific future losses or annual experience.

43. US dollar and GDP figures are in 2019 values.

44. The losses associated with hurricanes account for wind damage only, not damage from flooding or storm surge.

45. The development of the CDRP corresponds to increased impacts of natural hazards in recent years and increasing demand from the public sector for openly available disaster risk profiles. These profiles are intended to provide a holistic view of financial risk due to natural hazards, assisting governments in long-term planning and preparedness.

## Box A

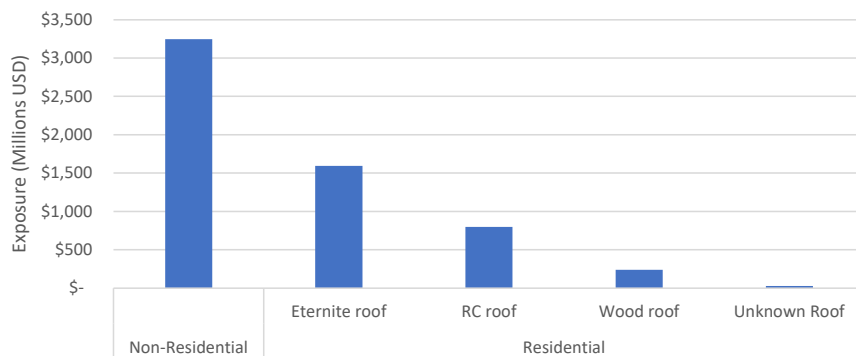
- Exposure
  - DRAS Capital Model (Gross Fixed Capital Formation time-series)
  - Global Assessment Report 2015
  - Global Earthquake Model
  - Census 2011
  - Comparison with DRAS studies on UCC (Unit Cost of Construction) and resi/non-resi from other countries
  - GHSL (Global Housing Settlement Layer)
- Hazard
  - Earthquake
    - DRAS Global Earthquake Model (developed for Global Program for Safer Schools, GPSS)
    - Global Assessment Report 2015
    - Global Earthquake Model (GEM)
    - Published Hazard Curves. E.g. UWI, Seismic Hazard Centre, East Caribbean Hazard Maps, 2021
- Vulnerability
  - DRAS Vulnerability Database

**A critical component of a CDRP is the development of a consistent and robust exposure model to complement the existing hazard and vulnerability models.** Exposure is an integral part of any risk assessment model, capturing the attributes of all exposed elements grouped by classes of vulnerability to different hazards and analyzed in terms of value, location, and relative importance.

**The CDRP captures the spatial and construction attributes of the total building stock in SXM, such as geographical location, urban/rural classification, type of occupancy, building typology (for example, wood, concrete, or masonry), and replacement value.** The total modeled replacement value of the building stock in SXM was estimated at US\$5.9 billion. When the final combined asset replacement and infrastructure density are integrated with existing hazard and vulnerability models, the main result is loss exceedance probability curves, which represent the likelihood that a specific economic loss will be exceeded. This was done for both earthquakes and hurricanes using building exposure.

### 3.2. Fiscal Disaster Risk Profile

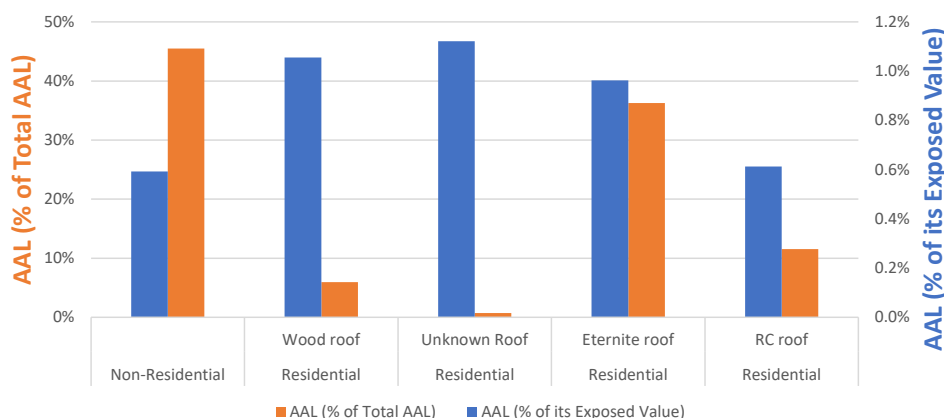
Figure 11. Exposure Breakdown by Occupancy and Roof Type



Source: World Bank CDRP

**Combining the exposure model with hazard and vulnerability models indicates that the AAL to the building stock due to earthquake risks is approximately US\$6.3 million, or 0.5 percent of the national GDP.** Additionally, there is a 1 percent chance in any given year that these losses are expected to exceed US\$120 million, or 10 percent of GDP.

Figure 12. Contribution of Each Roof Type to Overall AAL



Source: World Bank CDRP

Moreover, buildings with wooden roof covers are the most vulnerable to hurricanes, and the AAL of wooden roofs is 42 percent of its exposed value (see Annex 2 for more detailed results). Hurricane risks can be reduced by upgrading roofs to reinforced concrete or by upgrading wooden roofs to eternite. The analysis also suggests that nonresidential buildings incur the largest losses in the long term, with 45 percent of the country's AAL attributable to nonresidential buildings. (see Annex 2 for more detailed results.) However, the proportion of new resilient reinforced concrete construction built after Hurricane Maria is on the rise, which would reduce risk.

Figures 14 and 15 show the estimated potential future losses to SXM that could be caused by earthquakes and hurricanes, which could occur within a given return period. The return period of losses, such as those experienced in 2017 Hurricane Irma, is estimated at 60–100 years. To put things in perspective, the tropical cyclone SPHERA and excess rainfall loss assessment model used by the CCRIF SPC estimated SXM's long-term AAL from tropical cyclone- and excess rainfall -induced impacts as US\$39 million. This includes public and private sector building stock, infrastructure, and crops.

Figure 14. Estimated Losses Due to Hurricanes

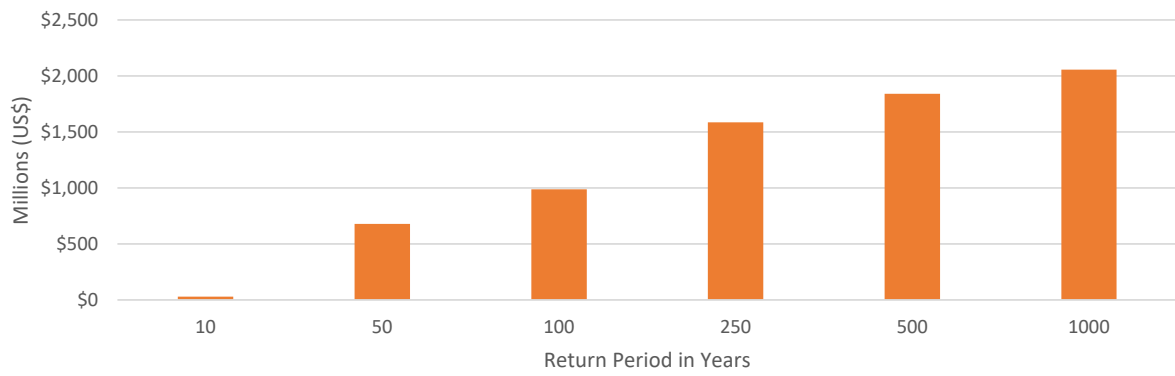
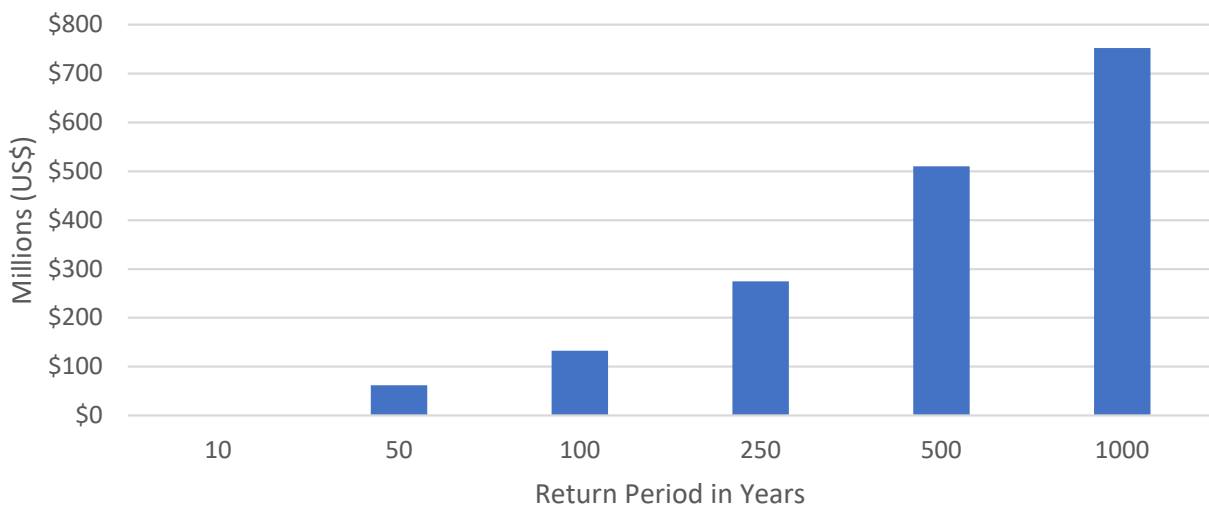


Figure 15. Estimated Losses Due to Earthquakes



# CHAPTER 4: Review of the Catastrophe Insurance Market in Sint Maarten

Catastrophe insurance is an ex-ante risk financing instrument through which part of a country's financial risk, and that of its citizens and businesses, can be transferred. This chapter aims to present an overview of the current insurance market in SXM, with specific insights on its capacity to play a key role in SXM's DRF strategy.

## 4.1 Market Overview

**SXM is an insurance market unlike any other in ways that make it difficult to understand.** Since the Federation of the Netherlands Antilles was dissolved in 2010, SXM has had joint insurance supervision with Curaçao, the other constituent country within the Kingdom of the Netherlands, and the 1990 insurance regulation applies to both. Insurance premium volumes, claims payments, profits, assets and liabilities, and any other insurance-related figures published by the supervisor (the Central Bank of Curaçao and SXM [CBCS]) until 2012 are consolidated for both countries and likely dominated by Curaçao, whose population is four times that of SXM (albeit with lower GDP per capita). Supervision by the CBCS follows from the institution of a monetary union consisting of SXM and Curaçao.

**The two countries differ not only in the size of their economies and populations but also in their exposure to natural hazards, and this compounds the distortions when consolidating their insurance market indicators.** The SXM Insurance Brokers Association estimated that Hurricane Irma caused insured losses of US\$3 billion in the country, US\$1.1 billion of which was for property insurance. The scattered car wrecks and widespread damage to hotels, restaurants, the airport, and other structures that are still visible today suggest that many properties were not or are not sufficiently insured or that insurers are yet to fully pay justified claims. This was confirmed by a June 2018 announcement from the CBCS.

## 4.2 Private Insurance

**There are no quantitative data to inform an assessment of SXM's insurance market today.** No information on the insurance market(s) since 2012 is available from the CBCS, and since SXM is a small market, no information is available elsewhere either. Even the consolidated historical figures are of limited significance, as they include the entire Federation of the Netherlands Antilles before its dissolution. Historic figures published by the CBCS distinguish between the 'international' (Figure 16) and the 'domestic' (Figure 17) insurance sector, which is much smaller and shows inconsistent underwriting results reliant on investment income.

Figure 16. Composition of Consolidated Net Pre-Tax Results (international sector)

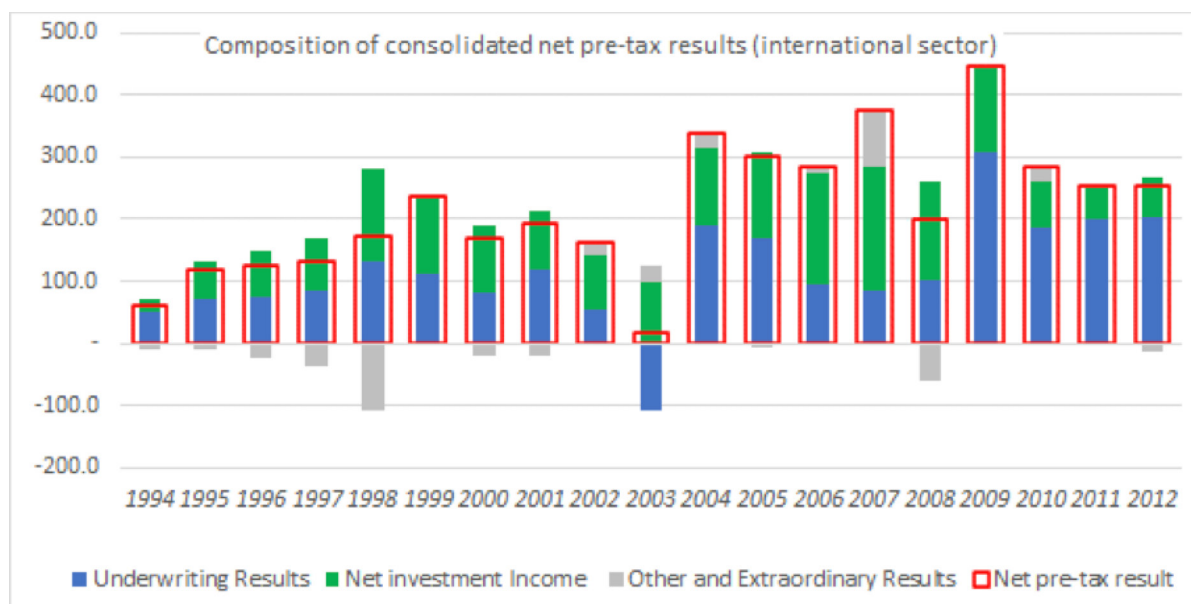
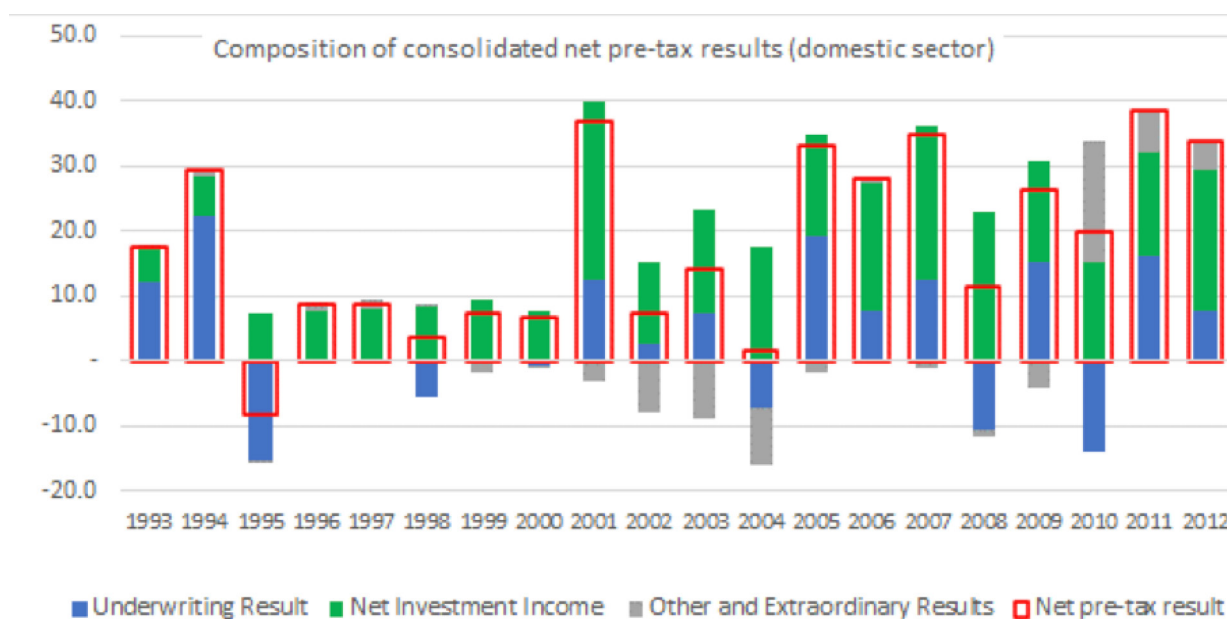


Figure 17. Composition of Consolidated Net Pre-Tax Results (domestic sector)



Source for 16 and 17: Author's calculation based on tables published by the CBCS (Netherlands Antilles until 2010).

**There is no information on the use of insurance by households and businesses in SXM;** elementary indicators, such as the total premium volume of policies sold in the country (or the insurance penetration and density indicators derived from that), are unknown. Interviews suggested that mortgage providers insist on property insurance for the mortgaged building (and hence most are insured), but also that the majority of the population do not own but rent homes, and that there are considerable numbers of undocumented irregular migrants and other people working in the informal economy, which are not thought to buy much insurance.

**According to the CBCS, as of December 2020, it supervised 11 locally registered nonlife insurance companies.** Of these, only NAGICO was domiciled in SXM, the local market leader that is undergoing a transfer of ownership to the Hong Kong reinsurer Peak Re. It further included four subsidiaries of foreign insurance companies (only one with an address in SXM), five branches of foreign insurance companies (three with addresses in SXM), and six indemnity insurance captives and two professional indemnity reinsurance



companies (all domiciled in Curaçao).

**Dozens of nonlife brokers are supervised—thought to intermediate about two-thirds of premium.**

As composite insurance companies are not allowed, the considerable number of nonlife insurers is complemented by 10 life insurers (all but one with addresses in Curaçao). The CSBS further supervises 11 funeral services insurance companies and some captives.<sup>46</sup>

**Combining the populations of SXM and Curaçao, the CBCS supervises a considerable number of insurance companies, and their prudential and market conduct supervision necessitates sufficient resources and attention.** No information is published on the sizes of these companies, and some may have minute market shares. But only eight people are dedicated to the supervision of insurance in SXM and Curaçao at the CBCS, supported by services from cross-cutting departments. At the time of writing this report, no further details about the supervisory approach could be ascertained.

### 4.3 Government Insurance

**While there is little information on the use of insurance by the private sector, government use of insurance is better documented.** Though not a law, it has long been government policy to insure government buildings with their contents (recently also including external furnishings, such as air-conditioning units) as well as vehicles. Insuring locations under construction, government property in transit, and valuable documents has been more difficult. Underinsurance, especially for school buildings, became evident after Hurricanes Irma and Maria, and of the 99 vehicles reportedly damaged in these events, 33 claims have been settled by insurers to date.

**The government has experienced the same challenges as the private sector:** a limited number of strong-brand insurers, premium rates increasing as a consequence of frequent natural disasters, considerable delays in claims payments after natural disasters—when large numbers of claims assessment experts are suddenly needed, often from abroad and lacking country-specific background, and often challenged to reach the sites of the damage—and unexpectedly low reimbursements from insurers. The government building (Box B) and the international airport (Box C) are good examples.

#### Box B

The new government building was finalized just months before Hurricane Irma. It is owned by the Social and Health Insurances SZV and rented by the government. The hurricane caused considerable damage to both the exterior and interior of the building. The exterior damage affected the roof and shutters mostly, and the interior damage included the data writing, air conditioning, plumbing, and electrical systems. In total, the damage was estimated at US\$2,653,000. The insurance claim was settled a year later for US\$2,450,000 after a deductible of US\$540,000. At that point, the repairs to the interior had not been finalized, and repairs to exterior damages had hardly begun.<sup>47</sup>

46. Inhoudsopgave: Registers according to December 31, 2020. ([https://cdn.centralbank.cw/media/supervision/20210406\\_register\\_per\\_31\\_december\\_2020.pdf](https://cdn.centralbank.cw/media/supervision/20210406_register_per_31_december_2020.pdf))

47. <https://curacaochronicle.com/region/insurance-claim-pay-out-paves-way-for-government-building-repairs-in-st-maarten/>.

### Box C

After years of expansion and renovation, the new terminal of Princess Juliana International Airport started operations in 2006. With 30,500 m<sup>2</sup> of fully air-conditioned floor space, 46 check-in and 10 transit desks, 13 boarding gates, 20 immigration booths, and five exit-control booths for departing passengers, it was designed to handle 2.5 million passengers annually. Annual passenger numbers exceeded 1.7 million in 2015. In 2017, Hurricane Irma caused severe devastation to the airport. Damage to the roof meant that subsequent hurricanes Jose and Maria flooded the building, which led to mold proliferation that made the airport a public health hazard by December. The airport quantified the losses to about US\$106 million of material damage, which resulted in US\$29 million of lost profits by mid-2018.<sup>48</sup> It documented the damage estimate with eight reports totaling 400 pages and many photographs, but the insurance company argued that they did not provide indications of the real cost of repair. Instead, it asked for contractor estimates for all proposed repairs, copies of the scope documents on which prospective contractors were being asked to tender, a detailed and fully documented claim list allocating the items under the respective headings in the policy schedule, and financial statements for the months before the loss.<sup>49</sup> The insurer calculated damages in the order of US\$37 million, including profit loss. Court proceedings lasted until mid-2018, when the insurer was ordered to pay US\$33 million in addition to the US\$25 million already advanced.<sup>50</sup> By then, annual passenger numbers had dropped to 790,000. By mid-2021, SXM's largest airport was still operating at partial capacity out of the temporary facilities opened in 2018. The US\$129 million 'Sint Maarten Airport Terminal Reconstruction Project' (supported by the Sint Maarten Trust Fund and the European Investment Bank), which aims to fully restore the service and passenger capacity to pre-Irma levels and improve resilience, had disbursed less than 25 percent by June 2021.<sup>51</sup>

Buildings and content were insured by the Ministry of General Affairs, while other assets were insured by the Ministry for Infrastructure and Housing. Insurers thought their key counterparts to be the Prime Minister for insurance decisions and the Minister of Finance for claims requests and payments. More recently, the government decided to put in place an insurance pool to handle all government assets, with the Ministry of Education taking the lead. This responds to the finding that after Hurricanes Irma and Maria, most schools turned out to be underinsured. As a consequence of that lesson, all property insurance for schools is to be based on updated evaluations henceforth. Another objective is to find ways of faster payouts of school-related claims (a more general 'extra governance' for timely claims payouts for everyone being desirable). The Insurance Committee tasked with structuring this coordinated government procurement of insurance has only just taken up the work; given the scarcity of insurance expertise in SXM, it is expected to also include specialists from abroad.

48. <https://curacaochronicle.com/region/nagico-pjia-fail-to-reach-agreement/>.

49. <https://curacaochronicle.com/region/nagico-ordered-to-pay-33-2m-advance-to-airport/>.

50. <https://curacaochronicle.com/region/nearly-700-million-usd-paid-by-nagico-to-insured-in-the-caribbean-thus-far/>.

51. <https://www.sintmaartenrecovery.org/projects/airport-terminal-reconstruction-project>.

# CHAPTER 5: Recommendations for National Disaster Risk Financing Strategy in Sint Maarten

**A comprehensive national DRF strategy for SXM should be designed to improve the capacity of the GoSXM to access immediate financial resources in the event of a national disaster and be flexible to allow for a proportional response based on the magnitude of loss while minimizing reallocations from existing programs and maintaining fiscal balance.** A total of 18 recommendations for a comprehensive DRF strategy in SXM are presented in Table 4. These recommendations follow the operational framework of first quantifying and assessing risk or the contingent liability of the government.

## 5.1 Recommendations

Table 4. Strategy Recommendations for DRF in SXM

Time Frame		Instruments and Strategy Recommendations for DRF
Sovereign Protection		
Short Term ( $< 1$ year)	1	Streamline and institutionalize loss and damage data collection and reporting system for all severities of events.
	2	Explicitly address contingent liabilities/fiscal risks arising from natural hazards in the GoSXM's fiscal legislation and regulations.
	3	Detail standard operating procedures (SOPs) for estimating economic losses from direct and indirect shocks.
	4	Consider capitalizing and earmarking a provision of a contingencies fund for natural hazard response—consistent with the AAL of hurricane events (US\$42.3 million).
	5	Start seeking access to a contingent line of credit that covers contingent liabilities of prominent events of at least a 10-year return period.
	6	Optimize sovereign parametric insurance (such as the CCRIF SPC) coverage to include existing immediate liquidity gaps.
	7	Pursue a pooled strategy for DRF and a subsequent implementation plan in collaboration with Curacao and Aruba
	8	Develop and institutionalize disaster-responsive Post-Disaster Budget Execution Guidelines.
	9	Ensure that existing capital projects have CERCs that can redirect uncommitted financing to emergency needs.
Medium Term (1–3 years)	10	Develop a risk-based asset management system based on a comprehensive inventory of public fixed assets.
	11	Institutionalize guidelines for centralized public procurement of insurance to achieve cost efficiency and economies of scale to the extent possible.
	12	Investigate the viability of earmarking a designated levy on tourism to capitalize on a disaster and resiliency fund.
	13	Improve the COA by integrating disaster management and climate change considerations to enable and improve tracking of disaster-related expenditures.
	14	Develop or subscribe to a livelihood protection mechanism for vulnerable populations such as fisherfolk, farmers, and tourism workers.
	15	Strengthen technical capacity for DRF within the MoF and Ministry of General Affairs, including on parametric insurance policies.

Commercial Insurance		
Short Term ( < 1 year)	16	Strengthen transparency and consumer protection, the preconditions for increased demand.
	17	Explore opportunities for the public sector to encourage the public to better understand and appreciate insurance.
	18	Disaggregate insurance data that are collected by the supervisor (CBCS) and currently consolidated for both countries, including premium volumes, claims payments, profits, assets, and liabilities for SXM.

## 5.2. Discussion

### Sovereign Protection

**1. Streamline and institutionalize loss and damage data collection and reporting system for all severities of events.** Historical damage and loss data are crucial for accurate disaster risk analysis. Historical data are important components of disaster risk assessment and actuarial analysis and thus play a significant role in the development of DRM strategies and financing instruments.

Upgrading the database maintained by the Ministry of general affairs in line with the standard damage and loss assessment (DaLA) methodology across ministries is recommended, along with guidelines on how and when to enter information. The framework would also benefit from an extension to estimate economic losses from direct and indirect shocks, extending beyond natural hazard events. This would allow line agencies, as well as local authorities, to report damage and losses easily. It would also enable other ministries, including MoF and VROMI, to access critical information for recovery planning and for reconstruction and retrofitting of existing infrastructure. Such a database would also be useful in substantiating appeals to donors, for example, the Kingdom of the Netherlands. Although this initiative could be launched in the short term, a comprehensive database might take time to be fully completed.

**2. Explicitly address contingent liabilities/fiscal risks arising from natural hazards in the GoSXM's fiscal legislation and regulations.** While GoSXM's public financial management framework provides escape clauses and some room to maneuver in the event of a disaster, the considerations are predominantly ex-post and are not conducive to an effective immediate financial response. Efforts to develop and institutionalize disaster-responsive Post-Disaster Budget Execution Guidelines could benefit from the preparation of a manual for post-disaster financing, accurately capturing the actors, the systems, the various sources of financing, and the process to disburse to the government.

**3. Detail standard operating procedures (SOPs) for estimating economic losses from direct and indirect shocks.** Confirming roles and responsibilities for specific disaster response activity through establishing an SOP enables swift emergency response and recovery in the advent of an event. Such an SOP would benefit from being made available in English for coordination with international partners and could include conditions to initiate assessments. An internationally accepted methodology for determining the physical damages, economic losses, and costs of meeting recovery needs after a natural disaster through a government-led process, like the Post-Disaster Needs Assessment (PDNA), would be a natural fit.

**4. Consider capitalizing and earmarking a provision of a contingencies fund for natural hazard response - consistent with the AAL of hurricane events (US\$42.3 million).** A contingency fund can be the ideal instrument to address short-term disaster expenditure needs rather than the imprest account or the use of advances. The contingency fund should have a fast disbursement mechanism and should be further capitalized and regulated as a vehicle for the rapid financing of public post-disaster reconstruction operations. Recent experience shows that obtaining funding for post-disaster reconstruction activities is

often done by reallocating already committed funding, thereby delaying or canceling planned maintenance or development activities. If the GoSXM is to implement a dedicated contingency fund to respond to disasters, it would need to enshrine these provisions in law and put in place additional safeguards to ensure that its use is prescribed by law.

**5. Start seeking access to a contingent line of credit that covers contingent liabilities of prominent events of at least a 10-year return period.** Engaging international development partners to develop more-flexible instruments addresses not only reconstruction but also relief and recovery. The GoSXM requires a menu of options to address DRF, and there is a need to develop a contingent line of credit that facilitates rapid disbursement of funds for medium- to high-intensity natural disasters after the reserve fund has been depleted. To that effect, a custom line of credit that can be developed with partners within the Kingdom of the Netherlands, which is complementary to CCRIF SPC, could offer customization in terms of triggers and cost-effectiveness to optimize coverage of varying impacts of natural disasters. While taking on contingent financing does increase public debt, there is an argument for increasing spending in times of a temporary economic shock like a natural disaster. Basic economic theory notes that a country should adjust to a negative permanent shock and cut spending, but if the shock is temporary, it can be financed and paid back later. In practice, however, policymakers face the extraordinarily difficult situation of needing to assess the permanency of a shock in real-time.

**6. Optimize sovereign parametric insurance (such as the CCRIF SPC) coverage to include existing immediate liquidity gaps.** A risk transfer mechanism such as CCRIF is most cost-effective for medium-to-high-severity events. SXM is currently modestly covered for tropical cyclones, earthquakes, and excess rainfall, with a maximum payout of US\$25 million for qualifying wind and rain events. Also, under the current agreement with the CCRIF SPC, the ceding percentage (that is, the amount of risk ceded to the international market) is low for the excess rainfall policy and moderately low for hurricanes. This underscores the need to optimize or increase CCRIF coverage to better serve the GoCD's needs and realities, at least until a reserve fund is efficiently capitalized and operationalized.

**7. Pursue a pooled strategy for DRF and a subsequent implementation plan in collaboration with Curacao and Aruba.** The development of an ex-ante plan for managing the fiscal impacts of natural disasters that considers financial capacity and desired risk retention and transfer levels, as well as the cost, timing, and availability of the various financing options for the different constituent countries within the Kingdom of the Netherlands. While Sint Maarten holds a considerably different risk profile compared to the other two constituent countries, its recent experience with natural events and the resulting impetus to develop DRF places it in a leading role amongst the CAS-islands to advance inter-island collaboration. Interest in collaboration has been expressed by the respective ministries of finance at the Comprehensive Disaster Risk Management and Financial Resilience Workshop for Overseas Countries and Territories in the Caribbean, held in Aruba in November 2022. Apart from the potential of pooling resources and stimulating south-south capacity development, collaborative efforts to advance DRF amongst the CAS islands could help elevate the cause on the Kingdom policy agenda.

**8. Develop and institutionalize disaster-responsive Post-Disaster Budget Execution Guidelines.** It is imperative that in a post-disaster situation, standards of transparency and accountability are not jeopardized, and the instructions are grounded in the existing disaster-related legislation and corresponding regulations.

**9. Ensure that existing capital projects have CERCs that can redirect uncommitted financing to emergency needs.** The redirection of existing projects through restructuring, reallocation, and triggering emergency components (CERCs) enables greater agility to expedite emergency efforts and respond to other acute needs.

**10. Develop a risk-based asset management system based on a comprehensive inventory of public fixed assets** This recommendation complements the ongoing effort to maintain a public asset register. Both the inventory and the loss reporting system (Recommendation 1) would inform efforts that prioritize the reconstruction and retrofitting of critical infrastructure. Rehabilitation and retrofitting existing, currently

uninhabited buildings could reduce government costs by decreasing rental payments, building resiliency in a pool of government assets, and increasing insurance coverage for public assets. An inventory of public assets is also the first step in accounting for the GoSXM's contingent liabilities in budgetary planning. A geo-referenced inventory of public assets at risk and their attributes (e.g., exact location, construction type, number of stories) is also a key component in building an exposure database, which is integrated with hazard and vulnerability models to establish a fiscal disaster risk profile. Generally, the more accurate the inventory is, the more accurate the fiscal risk assessment. Data to construct the inventory can be collected from various sources, such as government agencies, universities, research centers, international organizations, and statistics institutions. As the exposure database identifies what assets need to be protected, the GoSXM unit responsible for purchasing property insurance could be best suited to maintain the database. To better understand the collected information, the GoSXM may choose to standardize and house the information on an open-source web-based platform and make it accessible to all stakeholders.

**11. Institutionalize guidelines for centralized public procurement of insurance to achieve cost efficiency and economies of scale to the extent possible.** Recently, the government decided to put in place an insurance pool to handle all government assets, with the Ministry of Education taking the lead. This responds to the finding that after Hurricanes Irma and Maria, most schools turned out to be underinsured. As a consequence of that lesson, all property insurance for schools is to be based on updated evaluations henceforth. This example illustrates the risk of underinsurance but, at the same time, provides an opportunity to ensure timely payout for claims, disintermediation, and better overall coordination of government insurance procurement through an insurance committee.

**12. Investigate the viability of earmarking a designated levy on tourism to capitalize on a disaster and resiliency fund.** A study on the costs and benefits of introducing a designated levy on tourism to capitalize on a disaster and resiliency fund could inform whether such a scheme holds the potential to generate a sustainable revenue stream that could be earmarked for post-disaster recovery and reconstruction needs.

**13. Improve the COA by integrating disaster management and climate change considerations to enable and improve tracking of disaster-related expenditures.** SXM's financial management system should allow for the extraction of a DRM budget before and after events. Currently, codes and sub-codes allow for tracking of disaster-related expenditures, but they are not used consistently across ministries. Standard use of the codes can be promoted by a policy decision to give the project or activity code uniformly across all ministries. Such a policy should also state that all funding, including disaster management, should go through the budget.

**14. Develop or subscribe to a livelihood protection mechanism for vulnerable populations such as fisherfolk, farmers, and tourism workers.** Products like the Livelihood Protection Policy (LPP) offered by CCRIF provide some stability to the financial situation of vulnerable, low-income individuals after a disaster through the injection of quick liquidity, thereby allowing them to avoid adopting coping strategies that could lead them deeper into poverty or increase their vulnerabilities. As such, it is intended to help people whose livelihoods are affected without waiting for help from external sources or even relying on remittances.

**15. Strengthen technical capacity for DRF within the MoF and Ministry of General Affairs, including on parametric insurance policies.** Innovative financial tools to increase climate resilience, such as parametric covers, can be especially useful in the context of SXM, where traditional insurance markets lack appetite. However, as innovation continues, the range of alternative risk transfer options will only grow, and policymakers in SXM will increasingly require technical capacity for DRF to strengthen disaster response and recovery.

## Commercial Insurance

### **16. Strengthen transparency and consumer protection, the preconditions for increased demand.**

There is no information on the use of insurance by households and businesses in SXM; elementary indicators, such as the total premium volume of policies sold in the country (or the insurance penetration and density indicators derived from that), are unknown. Consumer protection centers on transparency. Broadly construed, transparency involves making relevant information available to consumers as well as others who might act on their behalf, such as academics, journalists, newspapers, consumer organizations, or other market watchdogs. Transparency-oriented regulatory strategies have the potential to promote consumer choice, harness market discipline, and ensure regulatory accountability.

**17. Explore opportunities for the public sector to encourage the public to better understand and appreciate insurance.** Given the prevalence of underinsurance on SXM among consumers, the public sector can play a key role in educating the public on the merits of understanding their coverage needs.

**18. Disaggregate insurance data that are collected by the supervisor (CBCS) and currently consolidated for both countries, including premium volumes, claims payments, profits, assets, and liabilities for SXM.** No data on the insurance market(s) since 2012 is available from the CBCS, and since SXM is a small market, no information is available elsewhere either. While the small scale of the SXM market and the intricacies of joint insurance supervision with Curaçao inhibit reporting efforts, the need for consumer protection necessitates greater transparency in the insurance sector.

## ANNEX 1: Sint Maarten Calamity Budget 2014–2021

	Service or Fiscal Years								
	2014	2015	2016	2017	2018	2019	2020	2021	
<b>Education, Culture, Youth and Sports (Onderwijs, Cultuur, Jeugd en Sportzaken)</b>									
43512 (30025) - Disaster Control (Calamiteiten bestrijding)	0.00	0.00	0.00	0.00	494446.00	0.00	0.00	0.00	
43512 (00013) - Disaster Control (Calamiteiten bestrijding)	0.00	0.00	0.00	0.00	0.00	0.00	1332531.00	1511550.00	
<b>Public Health, Social Development &amp; Labour (Volksgezondheid, Sociale Ontwikkeling en Arbeid)</b>									
43512 (30025) - Disaster Control (Calamiteiten bestrijding)	0.00	0.00	0.00	0.00	3213170.00	435000.00	228300.00	0.00	
<b>Tourism, Economic Affairs, Transport and Telecommunications (Toerisme, Economische Zaken, Vervoer en Telecommunicatie)</b>									
43512 (70041) - Disaster Control (Calamiteiten bestrijding) - Covid-19	0.00	0.00	0.00	0.00	0.00	0.00	83864.00	0.00	
<b>Housing, Spatial Planning &amp; the Environment (Volshuisvesting, Ruimtelijke Ordening en Milieu)</b>									
41003 (30025) - Overtime (Overwerk)	0.00	0.00	0.00	0.00	126713.00	0.00	0.00	0.00	
43425 (30025) - Maintenance of Buildings and Grounds (Onderhoud gebouwen en terreinen)	0.00	0.00	0.00	0.00	2550.00	0.00	0.00	0.00	
43425 (905) - Road Maintenance (Onderhoud wegen)	0.00	0.00	0.00	0.00	126713.00	0.00	0.00	0.00	
43495 (909) - Calamity Reservation (Calamiten Reservering)	0.00	0.00	0.00	0.00	2550.00	0.00	0.00	0.00	
43495 (912) - Calamity Reservation (Calamiten Reservering)	0.00	0.00	0.00	0.00	932271.00	2400000.00	976357.00	2300000.00	
43495 (913) - Calamity Reservation (Calamiten Reservering)	0.00	0.00	0.00	0.00	41142.00	466711.00	20900.00	466711.00	
43512 (905) - Disaster Control (Calamiteiten bestrijding)	0.00	0.00	0.00	0.00	168761.00	0.00	0.00	0.00	
43512 (906) - Disaster Control (Calamiteiten bestrijding)	0.00	0.00	0.00	18275653.00	3016395.00	11200000.00	11547910.00	8984802.00	
43512 (909) - Disaster Control (Calamiteiten bestrijding)	0.00	0.00	0.00	0.00	0.00	0.00	4215.00	0.00	
43512 (910) - Disaster Control (Calamiteiten bestrijding)	0.00	0.00	0.00	0.00	41142.00	466711.00	20900.00	466711.00	
43512 (30025) - Disaster Control (Calamiteiten bestrijding)	0.00	0.00	0.00	0.00	168761.00	0.00	0.00	0.00	
43517 (30025) - Debris/Garbage Collection & Processing (Vuil ophalen en verwerking)	0.00	0.00	0.00	18275653.00	3016395.00	11200000.00	11547910.00	8984802.00	

Source: Author's calculations and GoSXM's Concept Begroting for Service (and Calendar) Years 2014–2021.



# Annex 2: Sint Maarten Country Disaster Risk Profile

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## SINT MAARTEN Hurricanes and Earthquakes RISK PROFILE

### What is a country disaster risk profile?

An estimation of the potential economic losses to property caused by adverse natural hazards.

#### Country Disaster Risk Profile

##### Applications

- ▷ Inform disaster risk financing
- ▷ Develop key baseline data
- ▷ Evaluate impact of disasters
- ▷ Promote and inform risk reduction

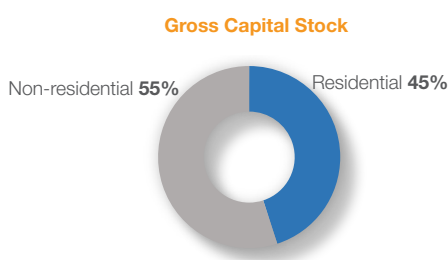
### Country At-A-Glance

GDP US\$ (2018): **1.185** billion

Population (2020 est.): **40,812**

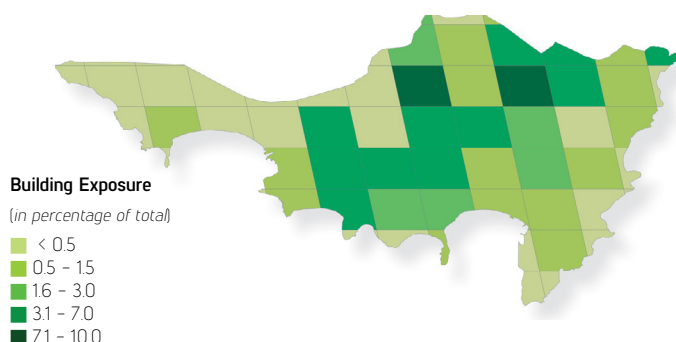
Replacement Value of Building Exposure (in 2018) US\$: **5.9** billion

An estimation of the potential economic losses to property caused by adverse natural hazards, on the Dutch side of the island.



### What is at risk?

Economic assets such as residential and non-residential buildings are at risk. These assets that are exposed to natural hazards are referred to as a country's **Building Exposure**. The map provides the distribution of residential buildings at risk from hurricanes and earthquakes.



### Snapshot

▷ The **hurricane risk** in Sint Maarten is **more significant** than the **earthquake risk**.

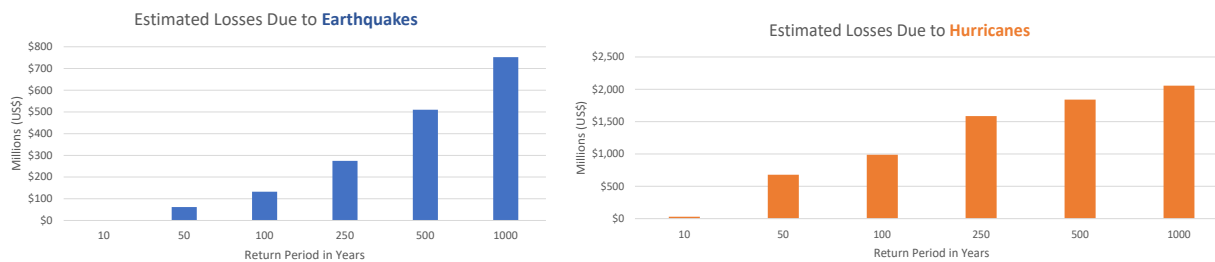
▷ Annual Average Loss (AAL) from **hurricanes** is **US\$ 42.3M (3.6% of GDP)** and from **earthquakes** is **US\$ 6.3M (0.5% of GDP)**.

▷ The Probable Maximum Loss for **hurricanes** (250 year return period) is **US\$ 1.5B (127% of GDP)** and for **earthquakes** (250 year return period) is **US\$ 271.2M (23% of GDP)**.

## What are the potential future losses?

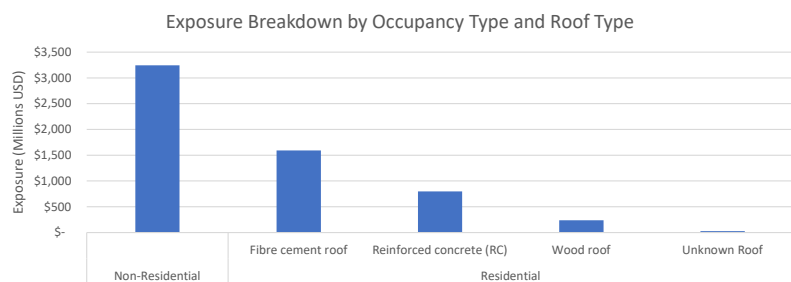
These charts show the estimated potential future losses to Sint Maarten that could be caused by earthquakes and hurricanes that could occur within a given return period. The return period of losses like those experienced in 2017 Hurricane Irma is estimated at 60-100 years.

This analysis is the first step needed to quantify contingent liability. Next steps include determining its impact on budgetary appropriation, which would directly inform the development of the disaster risk financing strategy.



## How are buildings distributed by typology?

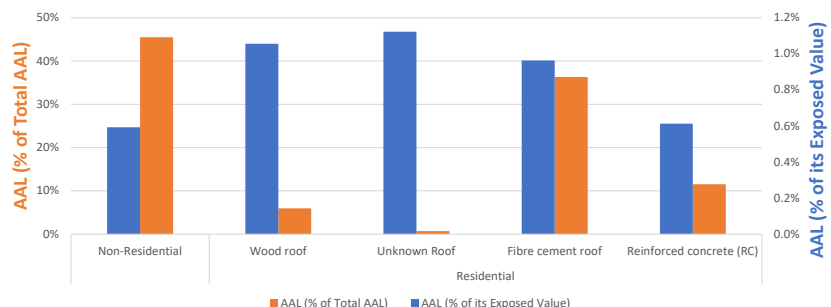
Corrugated fibre cement sheeting is the most prevalent residential roof type. Buildings with fibre cement roofing account for 60% of residential buildings (by value).



## How can hurricane risk be reduced?

Non-residential buildings have generally performed better than residential buildings in past hurricanes that impacted Sint Maarten.

Wooden roofs are the most vulnerable to hurricanes, and Reinforced Concrete (RC) roofing is the least vulnerable. Hurricane risk can be reduced by upgrading roofs to RC (or upgrading wooden roofs to fibre cement).



This chart shows the contribution of each roof type to the overall AAL (in orange). It also shows how vulnerable each roof type is, by showing each roof type's AAL as a proportion of its exposure (in blue).

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## ANNEX 3: DRFTA Project Methodology of Quantifying Contingent Liability

### Box 3.1. Probabilistic Catastrophe Risk Modeling

Fiscal disaster risk assessments for governments can be developed using inputs from probabilistic catastrophe risk models. Catastrophe modeling techniques were originally developed by the international (re)insurance industry to assess the risk on portfolios of underwritten assets (for example, buildings) and are increasingly being used by governments to analyze their exposure to adverse natural events. Typically, catastrophe risk models comprise the following components:

- **Exposure module.** This is a georeferenced database of assets at risk, capturing the important attributes such as geographical location, type of occupancy (for example, residential, commercial, industrial, and agricultural) and construction (for example, wood, steel, and masonry), age, and the number of stories.
- **Hazard module.** This module contains a catalog of thousands of potential natural catastrophe events that could occur in a region, each one defined by a specific frequency and severity of occurrence. Analyses are performed on the historical occurrence of catastrophic events to capture the extent of possible events, based on expert opinions.
- **Vulnerability module.** This is a series of relationships which relate the damage to an asset to the level of intensity of a peril (for example, ground shaking for earthquakes and wind speed for tropical cyclones). The relationships will vary by peril and by the characteristics of each asset, for example, a small wooden house and a tall concrete building will respond in different ways to a ground shaking caused by an earthquake and they will be damaged in different ways and to different extents. On a larger scale, for instance, when analyzing an entire neighborhood or city, proxies may be used to capture the overall vulnerability of an area.
- **Loss module.** This module combines the information from the other three components to calculate the overall losses expected for selected perils affecting a portfolio of assets of interest. Typically, there are two kinds of risk metrics produced: AALs and PMLs. The AAL is the expected loss, on average, every year for the risks being analyzed, while the PMLs describe the largest losses that might be expected to occur for a given return period (within a given time period), such as a 1-in-50-year loss or a 1-in-250-year loss. Risk metrics produced by probabilistic catastrophe risk models can be used to complement historical analyses and are particularly useful for policy makers to assess the probability of losses and the maximum loss that could be generated by major events (for example, an earthquake affecting a major city or a cyclone affecting a major port).

### Box 3.2. Loss Risk Estimation Data, Methodology, and Key Assumptions

The technical results derive from an actuarial analysis of past floods and wind-related events in Dominica. This analysis is based on empirical analysis of past losses and not on a probabilistic catastrophe model.

Although basic cross-validation of the data was completed, any material errors in the underlying data could affect the results of this technical analysis.

#### Methodology

The methodology followed these steps:

- Historical losses were compiled into a single table by event. Whenever the data were available, sectorial losses were recorded.
- Proxies to extract direct economic losses and public losses out of the total losses were determined by sector and more globally by event.
- Losses were then updated to 2019 US dollar values.
- Theoretical and statistical analysis validated the use of the Extreme Value Theory, and Generalized Pareto Distributions are fitted for each of the three categories of evaluated historical losses: direct losses, public losses, and total economic losses. Occurrences of losses above an upstream defined threshold are simulated through a Poisson distribution.

#### Assumptions

The analysis uses the following key assumptions:

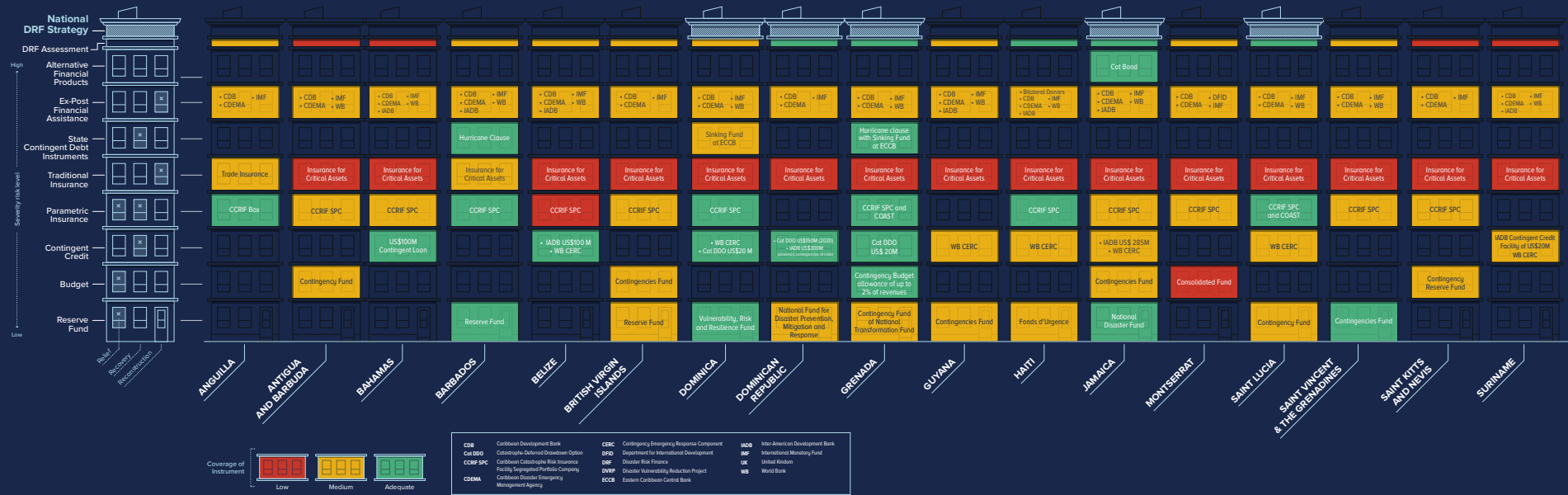
- There are no material errors or omissions in the data underlying the disaster damage report.
- The developed proxies to estimate the portions of direct losses and public losses are based on historical sectorial losses information drawn from DaLA reports and other sources of historical and sectorial losses. They are reasonable approximations.
- The use of the GDP ratios to update the historical losses to 2019 US dollar value is legitimate.
- The use of the Poisson distribution and the Extreme Value Theory is legitimate and the fitted statistical distributions are reasonable approximations of the occurrence and loss impact of natural disasters.

Source: World Bank DRFTA Project.

# Annex 4: DRF Instruments and Policy Framework in Select Caribbean Countries

## Disaster Risk Financing

Instruments and Policy Framework  
Select Caribbean Countries





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