

## 1 EXECUTIVE SUMMARY

### Hazards and macro-economic impacts

1.1. Dominica and St. Lucia are vulnerable to meteorological and geo-physical hazards. Meteorological risks include high winds, excess rainfall, hurricanes and drought. Earthquake and tsunami risk are common to both islands, with Dominica facing also volcanic activity.

1.2. Hydro-meteorological disasters inflict significant economic damage, resulting in substantial decreases in GDP growth and productivity. For St Lucia, average annual losses from meteorological events amount to approximately 3.4 percent of GDP, with a storm equivalent to more than 61 percent of GDP expected once every 100 years. Hurricane Tomas in 2010 caused economic damage estimated at 43% of Saint Lucia's GDP. In Dominica, successive storm events damaged the equivalent of 90 percent of GDP (Tropical Storm Erika) in 2015 and an estimated 226% of GDP (Hurricane Maria) in 2017. The historical record shows that Dominica suffered multiple meteorological events in the same season in 13 of the 45 years that hurricanes struck over the period 1886-1996. Climate change predictions suggest that meteorological events of this nature may become more frequent and intense.

1.3. During national consultations held in August 2018, significant concerns were raised about the macroeconomic impacts of natural disasters. In the view of the IMF, the cumulative effects of Tropical Storm Erika and Hurricane Maria have reversed progress made in debt management and placed Dominica at a high risk of debt distress. Hurricane Maria has exerted pressure on Dominica's trade balance. Dominica's merchandise trade deficit has widened from just under EC\$100 million to close to EC\$ 250 million.

### Trade issues in disaster response

1.4. Trade facilitation issues emerged strongly from both national consultations. In Dominica, a combination of physical damage, limited storage space and procedural shortcomings created major difficulties in managing the surge in container traffic as disaster relief arrived. Some stakeholders reported waits of six weeks or more before landed containers could be released. With imports accounting for more than 50% of GDP, private sector representatives were quick to underline the criticality of port functions. In Dominica, they pointed to critical shortages of equipment, materials and labour (both unskilled and skilled) in the aftermath of Hurricane Maria. Government respondents highlighted how distinct the experience of Hurricane Maria was in comparison with that of Tropical Cyclone Erika, as well as the sudden onset of the more powerful category five Hurricane Maria.

1.5. Approaches to the exemption of import tariffs, other charges and duties, and sales tax on relief goods were discussed at length and evoked strong views among private sector operators, notably in Dominica. How lists of relief items are established, the charges that are exempted, the duration of exemptions and quantitative restrictions on private actors were among issues raised. Distinctions were made in relation into relief organizations, households and commercial operators. A concern raised in both Dominica and St. Lucia was how to distinguish between relief and regular commercial imports. Consideration was also given as to how implementation of WTO Trade Facilitation Agreement disciplines might address some of these issues.

1.6. Suggestions made included *ex ante* consideration of exemption lists in advance of hurricane seasons, a move that could lead to more strategic consideration of such issues as the inclusion of safety equipment in the list of duty exempted items. The obligation to seek approval from the Caribbean Community's Council for Trade and Economic Development (COTED) was highlighted in relation to non-application or amendment of the CARICOM Common External Tariff (CET). Concerns were raised in relation to non-automatic import licences for some items useful in disaster response, such as chainsaws.

1.7. Coordination issues were noted in relation to relief organizations operating outside the Caribbean Disaster and Emergency Management Agency established Regional Response Mechanism. Regional cooperation was evident in the response to Hurricane's Irma and Maria. For example, St Lucia had acted as a logistics hub for relief assistance for Dominica. Further supporting regional solidarity (e.g. through temporary secondment of customs officers) was a further suggestion made to alleviate human resource constraints in the aftermath of major disasters.

### **Trade issues in disaster recovery**

1.8. Economic output in Dominica is projected by the IMF to drop by 14 percent in 2018 and will take around 5 years to recover to pre-hurricane levels. Private sector representatives expect Erika and Maria to accelerate underlying structural trends by further shrinking manufacturing activity and fuelling growth in services, notably tourism. Policymakers on both islands asserted the importance of fiscal incentives in retaining systemically important firms. Experiences with DCP and Ross Medical School were cited as cases in point.

1.9. Even though not directly impacted by Hurricanes Maria or Irma that struck the region in 2017, private sector representatives in St. Lucia highlighted trade destruction and diversion effects from disruption to regional transport systems, notably express courier and maritime transport services. Opportunities had also been created in construction services and through the diversion of cruise ship tourism from traditional routes.

1.10. The cruise segment of the tourist market demonstrated considerable resilience, returning to growth quickly with the start of a new tourist season. In contrast, the overnight stay sector in Dominica has been far slower to recover – delays in receiving insurance payments and an inability to refinance debts have put a brake on recovery and raised worries about a crowding out of smaller operators. The rapid pay-out of claims through CCRIF system was praised, but recommendations made also for a significant expansion of the payments and coverage. Repatriation of foreign nationals was an area of concern identified by tourism sector operators as in need of future consideration given the increasingly decentralized nature of tourist operations.

1.11. At a sectoral level, agriculture in both Dominica and St. Lucia has recovered the slowest from adverse meteorological events. Banana farmers in St. Lucia were still struggling with the after-effects of Hurricane Tomas (2010) when an outbreak of the soil-borne fungus black sigatoka further compounded their problems. Phytosanitary risks were noted as a complication in the recovery of the coconut sector in Dominica and as a constraint in regional trade in a product segment where both global and regional demand is strong. The decade-long route to recovery in Grenada's nutmeg production was cited as a salutary example of the time needed for tree crops to cover. The forestry sector more broadly was identified as a sector where limited domestic capacity in management and processing constrained inherent value being realized with many commercially valuable downed trees left in situ or disposed of as waste. Refuse disposal services was identified as an area where lessons could be learnt in a review of the response to Irma and Maria. Fisheries was another sector negatively impacted.

### **Trade issues in disaster resilience**

1.12. The intention of the Dominican government to become the first climate resilient nation is recognition of the need to break the cycle of periodic disasters and debt distress. A do-nothing policy, in the view of the IMF, will deliver dramatic negative economic outcomes, with large permanent losses of capital, output, and growth. Building resilience is necessary not only to reduce the human, social, and economic costs associated with climate and natural disasters, it is also a way to exit the vicious circle of natural disaster and subsequent high public debt.

1.13. Import tariff policy can influence the cost of hardening infrastructure. Experience in Dominica underscores how steel and cement demand slow when tariffs are high. Insurance coverage, notably for the private sector and of public assets, could be facilitated by further market development. Both private sector and government participants suggested that hydro-electric power would be a development and trade game-changer, reducing the cost of electricity and stemming the drain of foreign exchange on diesel imports. Business continuity planning was mentioned as another area for both firms and government.

1.14. The role that weather forecasting services can play in disaster resilience and reduction was recognized, together with their potential for efficiency gains in key sectors e.g. tourism through targeted marketing and predictions (e.g. of sargassum blooms). Improved physical protection of data and the use of cloud storage services were considered as actions to support resilience.

## 2 INTRODUCTION

2.1. Since 1950, 324 disasters have hit the Caribbean, killing 250,000 people and affecting more than 24 million through injury and loss of homes and livelihoods. The economic cost of these disasters for the Caribbean is substantial, exceeding \$22 billion (in constant 2009 dollars) between 1950 and 2016, compared with \$58 billion for similar disasters globally. (IMF 2018)<sup>1</sup>

2.2. The Caribbean is one of the most disaster-prone regions in the world. The six member<sup>2</sup> countries of the Eastern Caribbean Currency Union (ECCU) rank in the top ten most disaster-prone countries in the world when considering disasters per land area or percentage of population. Vulnerability to frequent natural hazard events has resulted in affected Caribbean countries incurring very high economic costs to replace damaged or destroyed infrastructure. For Caribbean countries, losses from natural hazards have risen from 0.9% of GDP per year in the 1980s and 1990s to 1.3% of GDP in the 2000s. Moreover, the effects of natural hazards on growth and debt are also significant. (Caribbean Development Bank (CDB) 2014)<sup>3</sup>

2.3. For some countries, the damage incurred well exceeds the size of the economy; Hurricane Maria is estimated to have cost Dominica 225 percent of its GDP, while the hurricane damage for Grenada in 2004 was 200 percent of GDP, leaving reconstruction needs that can take years to fulfil. Climate change is expected to compound the problem by making such disasters more frequent and severe. (IMF 2018)<sup>4</sup>

2.4. Disasters have large and enduring economic effects that range from lost income to the destruction of physical and human capital, infrastructure, and property. Rebuilding provides a temporary boost, but indirect effects can spread throughout the economy and undermine investment, growth, and macroeconomic performance. Debt dynamics inevitably worsen as governments borrow to finance recovery and growth slows. (IMF 2018)<sup>5</sup>

2.5. An analysis of 12 Caribbean countries with the largest damage costs relative to GDP since 1950 supports this view. Although most countries experienced reduced growth in the year of a disaster, they recovered in the subsequent year. But fiscal deficits increased in 7 of 12 countries, current accounts deteriorated, and debt-to-GDP ratios surged. In some, debt continued to rise, suggesting that exposure to frequent disasters interrupts efforts to sustain strong growth and improve public finances. If these countries could reduce disaster damage, they might generate significant growth dividends and find their way out of the vicious cycle of high debt and low growth in which many are currently trapped. (IMF 2018)<sup>6</sup>

2.6. Estimates of economic impact are difficult to quantify, not only because of rapid changes in global climate change projections but also because of the limited climate model projections at suitable spatial scales available for the Caribbean, and the weak inventory of the region's environmental resources and assets. Various studies have given estimates of 5-30% (annualised

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<sup>1</sup> "Bracing for the storm: For the Caribbean, building resilience is a matter of survival", March 2018 İnci Ötker and Krishna Srinivasan, International Monetary Fund. Available at: [https://www.researchgate.net/publication/323664225\\_Bracing\\_for\\_the\\_Storm\\_For\\_the\\_Caribbean\\_building\\_resilience\\_is\\_a\\_matter\\_of\\_survival](https://www.researchgate.net/publication/323664225_Bracing_for_the_Storm_For_the_Caribbean_building_resilience_is_a_matter_of_survival)

<sup>2</sup> Antigua and Barbuda, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia and Saint Vincent and the Grenadines

<sup>3</sup> "Caribbean Development Bank Strategic Plan 2015-2019", December 2014, Caribbean Development Bank. Available at: [https://www.caribank.org/sites/default/files/publication-resources/BD-Paper\\_StrategicPlan\\_2015-19\\_Final\\_For\\_PublicDisclosure-Final.pdf](https://www.caribank.org/sites/default/files/publication-resources/BD-Paper_StrategicPlan_2015-19_Final_For_PublicDisclosure-Final.pdf)

<sup>4</sup> "Bracing for the storm: For the Caribbean, building resilience is a matter of survival", March 2018 İnci Ötker and Krishna Srinivasan, International Monetary Fund. Available at: [https://www.researchgate.net/publication/323664225\\_Bracing\\_for\\_the\\_Storm\\_For\\_the\\_Caribbean\\_building\\_resilience\\_is\\_a\\_matter\\_of\\_survival](https://www.researchgate.net/publication/323664225_Bracing_for_the_Storm_For_the_Caribbean_building_resilience_is_a_matter_of_survival)

<sup>5</sup> "Bracing for the storm: For the Caribbean, building resilience is a matter of survival", March 2018 İnci Ötker and Krishna Srinivasan, International Monetary Fund. Available at: [https://www.researchgate.net/publication/323664225\\_Bracing\\_for\\_the\\_Storm\\_For\\_the\\_Caribbean\\_building\\_resilience\\_is\\_a\\_matter\\_of\\_survival](https://www.researchgate.net/publication/323664225_Bracing_for_the_Storm_For_the_Caribbean_building_resilience_is_a_matter_of_survival)

<sup>6</sup> "Bracing for the storm: For the Caribbean, building resilience is a matter of survival", March 2018 İnci Ötker and Krishna Srinivasan, International Monetary Fund. Available at: [https://www.researchgate.net/publication/323664225\\_Bracing\\_for\\_the\\_Storm\\_For\\_the\\_Caribbean\\_building\\_resilience\\_is\\_a\\_matter\\_of\\_survival](https://www.researchgate.net/publication/323664225_Bracing_for_the_Storm_For_the_Caribbean_building_resilience_is_a_matter_of_survival)

values) of GDP. However, even taken at the low end of the range (in absolute terms), the impact of climate change is expected to be detrimental to long-term growth and development. (CDB 2014)<sup>7</sup>

2.7. The poorest and most vulnerable citizens suffer the most from natural disasters and climate-induced events. Ending poverty will therefore require building resilience to climate change and associated events. It has been estimated that every dollar spent to reduce risk saves at least four dollars in future relief and rehabilitation costs. (CDB 2014)<sup>8</sup>

2.8. Two sequential Category 5 hurricane systems, Irma and Maria, struck the Caribbean between the fifth and twelfth of December 2017 resulting in multi-island impacts. Irma became a category 5 hurricane in the Western Atlantic Ocean on 5 September 2017 with maximum sustained winds near 185 mph. It impacted Anguilla, Antigua and Barbuda, The Virgin Islands (BVI), Dominica, St. Kitts and Nevis, Montserrat the northern districts of Haiti, Turks and Caicos Islands and the south-eastern islands of the Bahamas. A combination of strong winds, storm surge and intense rainfall, resulted in the loss of forty lives and significant damage to homes, critical infrastructure and other sectors throughout the affected islands. (CDEMA 2017)<sup>9</sup>

2.9. Whilst Hurricane Irma was still active, Hurricane Jose, a Category 3 cyclone, posed a threat to the Northern Leeward Islands but fortunately did not result in any impacts. However, the threat posed by Jose immediately following the impact of Irma, triggered the Government of Antigua and Barbuda to evacuate the population of Barbuda. Maria became a category 5 hurricane near the Leeward Islands on 18 September 2017. It rapidly progressed from a tropical depression to a major hurricane (Category 3) within 48 hours and, subsequently to a catastrophic hurricane (Category 5) eight hours later impacting Dominica at approximately 9:35 pm on September 18th, with wind speeds of 155 mph. It then impacted St. Kitts and Nevis, Antigua and Barbuda and The Virgin Islands (BVI) between September 19 and 20 2017. (CDEMA 2017)<sup>10</sup>

2.10. To examine the economic and trade impacts of the September 2017 hurricanes, research visits were conducted to Dominica (27-28 August) and Saint Lucia (29-30 August). In Dominica, a programme of consultations was organized by the Ministry of Trade Energy and Employment. A total of 23 persons and organizations were consulted (Appendix 1). In Saint Lucia, a programme of consultations was organized by the Ministry of Commerce, Industry, Investment, Enterprise Development and Consumer Affairs. A total of 22 persons and organizations were consulted, including the Organization of Eastern Caribbean States (Appendix 1). Meetings were also held in Barbados with five Caribbean regional organizations (1 September). Additional desk research was undertaken by the consultant to supplement insights offered by respondents. The authors also wish to acknowledge the support offered by the Geneva office of the Organization of Eastern Caribbean States.

2.11. The text that follows discusses in depth the experience of both Dominica and St. Lucia in relation to their exposure to natural hazards and experience of natural disasters; the macroeconomic and trade effects of these crises and trade issues arising in disaster response, disaster recovery and disaster resilience.

### 3 DOMINICA

#### 3.1 Exposure to natural hazards and experience of natural disasters

3.1. Tropical storms and hurricanes occupy a prominent place in Dominica's history. The earliest recorded deaths from a hurricane date back to 1567 (Fontaine 2003). Between 1886 and 1996, Dominica was hit by 61 storms in 45 separate years, of which 21 were hurricanes. The two most

<sup>7</sup> "Caribbean Development Bank Strategic Plan 2015-2019", December 2014, Caribbean Development Bank. Available at: [https://www.caribank.org/sites/default/files/publication-resources/BD-Paper\\_StrategicPlan\\_2015-19\\_Final\\_For\\_PublicDisclosure-Final.pdf](https://www.caribank.org/sites/default/files/publication-resources/BD-Paper_StrategicPlan_2015-19_Final_For_PublicDisclosure-Final.pdf)

<sup>8</sup> "Caribbean Development Bank Strategic Plan 2015-2019", December 2014, Caribbean Development Bank. Available at: [https://www.caribank.org/sites/default/files/publication-resources/BD-Paper\\_StrategicPlan\\_2015-19\\_Final\\_For\\_PublicDisclosure-Final.pdf](https://www.caribank.org/sites/default/files/publication-resources/BD-Paper_StrategicPlan_2015-19_Final_For_PublicDisclosure-Final.pdf)

<sup>9</sup> "Rapid Review of the Regional Response in the Hurricanes Irma and Maria Events", October 2017, Caribbean Disaster Emergency Management Agency (CDEMA) Available at: [https://www.cdema.org/Rapid\\_Review\\_of\\_the\\_Regional\\_Response\\_-\\_Irma\\_and\\_Maria\\_Events\\_2017\\_Final.pdf](https://www.cdema.org/Rapid_Review_of_the_Regional_Response_-_Irma_and_Maria_Events_2017_Final.pdf)

<sup>10</sup> "Rapid Review of the Regional Response in the Hurricanes Irma and Maria Events", October 2017, Caribbean Disaster Emergency Management Agency Available at: [https://www.cdema.org/Rapid\\_Review\\_of\\_the\\_Regional\\_Response\\_-\\_Irma\\_and\\_Maria\\_Events\\_2017\\_Final.pdf](https://www.cdema.org/Rapid_Review_of_the_Regional_Response_-_Irma_and_Maria_Events_2017_Final.pdf)

powerful hurricanes recorded were category 4 storms, Hurricane David in 1979 and Hurricane Lenny in 1999. In 13 of the 45 years that storms hit, there were multiple events, with each successive storm further exacerbating the damage from the previous occurrence (Table 1). For example, in 1979, Hurricane Frederick occurred only one week after the category 4 Hurricane David had damaged or destroyed 95% of the housing stock and left two-thirds of the population without food, water or electricity. (World Bank, ODI 2001)

3.2. Dominica is vulnerable to various natural hazards arising from meteorological events (high winds, excess rainfall, and hurricanes) and geophysical events (earthquakes, volcano, and tsunami). Damage is associated with excessive and prolonged rainfall, leading to flooding and landslides (Commonwealth of Dominica, 2015)<sup>11</sup>. Furthermore, historically the Dominican economy has incurred tremendous costs resulting in substantial decreases in GDP growth and productivity from hydro-meteorological disasters. The average economic losses caused by extreme hydro-meteorological disasters accounted for approximately 7.5% of GDP from 1990 to 2002 (Hamelin and Epstein, Global Climate Risk Index 2013).

3.3. The combined impact of Hurricane David in 1979, followed closely by Hurricane Frederick and then by Hurricane Allen in 1980, was particularly devastating. Real GDP plummeted by 17% in 1979, whilst agricultural GDP alone fell by 32% and non-agricultural GDP declined by 8.3%. Hurricane David also resulted in the temporary exodus of almost 20,000 people, equivalent to about a quarter of the pre-disaster (1978) population.<sup>12</sup> Hurricane Dean in 2007 resulted in damages which accounted for 58% of GDP (US 162 million) as well as substantial damages to infrastructure (Commonwealth of Dominica, 2015).

3.4. Due to steeply sloping topography, economic activities and human settlement are highly concentrated along narrow coastal areas. Therefore, a large proportion of population and assets are highly exposed to hurricanes, high-intensity rainfall, wind, and storm surges. Due to the island's topography, physical infrastructure is vulnerable to disasters. This vulnerability is partly attributed to the failure to address natural hazard risks in constructing infrastructure or to deferring maintenance (Commonwealth of Dominica, 2015)<sup>13</sup>

3.5. In 2011, for example, record level flooding and landslides associated with heavy rain caused in excess of US\$100 million in damage. In 2013, heavy rains caused landslides, flooding and a 40-foot deep split along a section of the East Coast main road resulting in two deaths. Also in 2013, heavy rainfall caused extensive landslides, falling rocks, and flooding with restoration and rehabilitation works estimated at US\$18 million. (Climate Investment Funds (CIF 2015)<sup>14</sup>

3.6. In 2015, flooding caused by Tropical Storm Erika damaged the equivalent of 90 percent of GDP (EC\$1.3 billion ,US\$483 million). The majority of damage was incurred in the transport sector (60%), followed by the housing sector (11%) and agriculture sector (10%) (Commonwealth of Dominica, 2015).

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<sup>11</sup> "Post-Disaster Needs Assessment Hurricane Maria September 18, 2017 - A Report by the Government of the Commonwealth of Dominica" 15 November 2017, Available at: <https://www.gfdr.org/sites/default/files/publication/dominica-pdna-maria.pdf>

<sup>12</sup> Charlotte Benson, Edward Clay, Franklyn V. Michael, Robertson, Alastair W. Robertson. 2001. *Dominica: natural disasters and economic development in a small island state (English)*. Disaster risk management working paper series; no. 2. Washington, D.C.: The World Bank. <http://documents.worldbank.org/curated/en/875391468770118094/Dominica-natural-disasters-and-economic-development-in-a-small-island-state>

<sup>13</sup> "Post-Disaster Needs Assessment Hurricane Maria September 18, 2017 - A Report by the Government of the Commonwealth of Dominica" 15 November 2017, Available at: <https://www.gfdr.org/sites/default/files/publication/dominica-pdna-maria.pdf>

<sup>14</sup> "Climate Resilience in Dominica", Final Report on the Progress of Dominica's Strategic Program for Climate Resilience and Annual Monitoring" June 2015 [https://www.climateinvestmentfunds.org/sites/cif\\_enc/files/meeting-documents/dominica-2015\\_ppcr\\_results\\_report.pdf](https://www.climateinvestmentfunds.org/sites/cif_enc/files/meeting-documents/dominica-2015_ppcr_results_report.pdf)

**Table 1: Geophysical and meteorological events impacting Dominica (1979 - 2013)**

Date	Event	Impact	Date	Event	Impact
2013 Dec 24	Trough, flash flooding and landslides	Damage to housing and infrastructure	2003	Seismic activity north	
2013 April	Heavy rains, 30+ landslides across the country	Damage to roads and agriculture	2001	Drought	
2013 Sept 5	Landslide Morne Prosper	Roads blocked	1999 April	Landslides in the north 100+	Damage to roads and housing
2011 Jul 29	Landslide Soufriere	Roads blocked	1999	Hurricane Lenny	Coastal Damage
2011 Jul 28	Miracle Lake flooding (ayou)	Damage to ecosystem, agriculture, fisheries and road network	1998 to 2000	Seismic activity in the south	
2011	Storm Ophelia	Damage to housing and infrastructure	1997	Landslide Bagatelle	
2010-2011	Severe Drought and extended rainy season of 2010	Loss of income in agricultural sector	1995	Hurricane Luis	Damage to housing, agriculture and infrastructure
2010 May 24	San Sauver Landslide	Disaster Zone	1995	Hurricane Marilyn (Cat 1)	Damage to housing, agriculture and infrastructure
2009 Jul	Flooding	Damage to infrastructure	1995	Hurricane Iris	Damage to housing, agriculture and infrastructure
2008	Hurricane Omar	Damage to coast and fishing industry	1989	Hurricane Hugo	
2007	Hurricane Dean (Cat 2)	Damage to agriculture and housing	1988	Hurricane Gilbert	
2007	Landslide Campbell		1986 Nov 11	Landslide Good Hope	
2007	Landslide		1986 Nov 12	Landslide Castle Bruce	
2007 Nov 29	Earthquake (6.5 Richter Scale)	Housing Infrastructure	1984	Hurricane Klaus	
2004 Nov 21	Earthquake	Damage to churches and housing in the north	1983	Landslide Bellevue Chopin	
2004 Nov	Series of landslides		1980	Hurricanes Frederick & Allen (Cat 1)	Economy Agriculture
2003	Carholm landslide	Damage to agriculture and Tourism	1979 Aug 29	Hurricane David (Cat 5)	Total devastation
2003	Landslide Bellevue Chopin				

Source: PDNA 2017

3.7. In response to Tropical Storm Erika, the Government decided not to declare a state of emergency, but identified nine special disaster areas. (Katafono,2018) <sup>15</sup> At the time that Erika struck, reforms were under way for public debt consolidation and to meet the target of 60 per cent debt to GDP by 2020. However, with the impact of the storm, and weaker recovery prospects, there was concern that additional public debt consolidation measures before 2021 could be counterproductive, particularly if consolidation crowded out investment for reconstruction. (Katafono,2018) <sup>16</sup> Table 2 below provides an overview of damage and losses incurred from Tropical Storm Erika in 2015.

**Table 2: Summary of Damage and Loss Caused by Hurricane Erika in 2015 (in Millions)**

Sectors	Damage US\$	Loss US\$	Total US\$
Productive	71.07	17.13	88.2
Agriculture, Fisheries and Forestry	42.46	4.87	47.33
Tourism	19.48	11.70	31.18
Industry & Commerce	9.13	0.56	9.69
Infrastructure	283.48	51.07	334.55
Water and Sanitation	17.14	2.38	19.52
Air and Sea Ports	14.90	0.08	14.98
Roads and bridges	239.25	48.28	287.53
Electricity	2.19	0.33	2.52
Telecommunications	10.00	0.00	10.00
Social	48.72	11.36	60.09
Housing	44.53	9.61	54.15
Education	3.55	0.45	4.00
Health	0.64	1.30	1.94
<b>TOTAL</b>	<b>403.28</b>	<b>79.56</b>	<b>482.84</b>

Source: Government of Dominica<sup>17</sup>

3.8. Category 5 Hurricane Maria hit Dominica on 17 September 2017. The storm struck at a time that the government was preparing relief supplies for other Caribbean islands affected by the passage of Hurricane Irma. Hurricane Maria was one of the most rapidly intensifying storms in recent history, intensifying to a category 5 hurricane, roughly 24 hours after being upgraded from a tropical storm.

3.9. Hurricane Maria provoked damage estimated at 226% of GDP. Some 1.8 million work days were lost across tourism, agriculture, and commerce. Commerce and the micro-business sector suffered damage to the tune of US\$ 70.4 million. Damage and losses in the agriculture sector were substantial. Agricultural production including crops, infrastructure, equipment, and croplands, was

<sup>15</sup> "Comparative Analysis of Disaster Risk Reduction and Management in Dominica and Vanuatu: Lessons for Small States", *Small States Digest*, No. 2018/01, Commonwealth Secretariat, London, <https://doi.org/10.14217/6f77cc82-en>.

<sup>16</sup> "Comparative Analysis of Disaster Risk Reduction and Management in Dominica and Vanuatu: Lessons for Small States", *Small States Digest*, No. 2018/01, Commonwealth Secretariat, London, <https://doi.org/10.14217/6f77cc82-en>.

<sup>17</sup> "Rapid Damage and Impact Assessment, Tropical Storm Erika 27 August 2015", A Report by the Government of the Commonwealth of Dominica", 25 September 2017, ACP-EU Natural Disaster Risk Reduction Program. Available at <https://www.gfdr.org>.

affected. Furthermore, high winds and intense rainfall damaged the forest system (Commonwealth of Dominica, 2015)<sup>18</sup> Table 3 below provides an overview of damage and losses.

**Table 3: Summary of Damage and Loss Caused by Hurricane Maria in 2017 (in Millions)**

	Damages US\$	Losses US\$	Total US\$	Needs US\$
<b>PRODUCTIVE SECTOR</b>	177.95	202.49	380.44	188.52
Agriculture	55.27	124.37	179.64	88.46
Fisheries	2.41	0.5	0.5	2.54
Forestry	29.72		29.72	14.87
Commerce and Micro Business	70.4	6.85	77.25	73.01
Tourism	20.15	70.77	90.92	26.19
<b>SOCIAL SECTOR</b>	444	42	486	638
Housing	353.96	28.5	382.46	519.75
Education	73.98	3.21	77.19	94.2
Health	10.9	6.95	17.85	22.14
Culture	5.07	2.91	7.98	4.67
<b>INFRASTRUCTURE SECTOR</b>	306	135	441	509
Transport	182.15	52.62	234.77	302
Electricity	33.18	32.94	66.12	80.68
Water and Sanitation	24	39.73	63.73	56.26
Telecommunication	47.74	8.31	56.05	47.84
Airports and Port	18.89	3.26	22.15	22.67
<b>CROSS-CUTTING</b>	3	1	4	13
Disaster Risk Management	3	0.8	3.8	10.22
Environment				1.78
Gender				0.79
<b>TOTAL</b>	<b>931</b>	<b>380</b>	<b>1,311</b>	<b>1,368</b>

Source: Government of Dominica, 2015<sup>19</sup>

## 3.2 Trade impacts and issues

### 3.2.1 Meeting with Rt Hon Minister Douglas, Minister of Trade, Dominica

3.10. During a courtesy call on 26 August 2018, the Minister highlighted damage to the agricultural sector, the backbone of the Dominican economy, caused by Hurricane Maria. He outlined direct losses in terms of production destroyed and some of the difficulties faced in re-establishing trade relationships. Damage had been compounded by the destruction of two multi-purpose pack houses that were used for the export of fresh fruit and vegetables. The loss of these facilities was a major impediment for export recovery. Nevertheless, root crops had proven resilient, notably dasheen, ginger, potatoes and yams. In January 2018, only four months after the hurricane, inter-island ginger exports had restarted.

<sup>18</sup> "Post-Disaster Needs Assessment Hurricane Maria September 18, 2017 - A Report by the Government of the Commonwealth of Dominica" 15 November 2017, Available at: <https://www.gfdr.org/sites/default/files/publication/dominica-pdna-maria.pdf>

<sup>19</sup> "Post-Disaster Needs Assessment Hurricane Maria September 18, 2017 - A Report by the Government of the Commonwealth of Dominica" 15 November 2017, Available at: <https://www.gfdr.org/sites/default/files/publication/dominica-pdna-maria.pdf>

### Box 1: Hurricane impacts on Dominica's agriculture sector

Agriculture, and specifically crops, play a dominant role in the Dominican economy. The sector's contribution to GDP has been increasing and reached 10.5% in 2013. Dominica's non-banana crops include plantains, citrus fruits, root crops, vegetables, herbs and spices. The sector employs approximately a third of the labour force and is an important source of foreign exchange earnings. The sector operates in a very challenging local and global climate. Locally challenges include relatively high cost of production; low labour productivity resulting in "supply-side" constraints and an ageing farmer population. Globally the sector faces preference erosion and increased competition in traditional markets.<sup>20</sup>

The Government has improved the quality management system through the construction of modernised infrastructure such as a Banana Inland Reception and Distribution Centre, two Packing Houses, and a Centre for Testing Excellence. New legislation related to the exportation of fresh produce was enacted in 2009. The Animals Act, the Plant Protection and Quarantine Act, and the Pesticides Act have also been revised and the revisions were pending enactment in 2014.<sup>21</sup>

Damage and losses sustained in the agriculture sector were extensive, affecting all aspects of agricultural production including crops, infrastructure, equipment and croplands. Livestock damage includes 45 percent of cattle, 65 percent pigs and over 90 percent chickens with an estimated value of EC\$ 8.68M (US\$3.21M). Crop losses were similarly high with respect to basic foodstuffs such as root crops, vegetables, banana and plantain where crop destruction ranged from 80 to 100 percent. Total estimated damage and losses to crops is estimated at EC\$ 350.6M (US\$ 129.9M) Much of the agricultural infrastructure and equipment was damaged or destroyed including buildings, animal husbandry facilities, agricultural roads and croplands.<sup>22</sup>

Source: WTO, Government of Dominica

3.11. Minister Douglas highlighted that the start of the new school year (September 2018) would be a big test for the government and the return to normality. Significant efforts had had to be deployed to repair school buildings and to source new text books. A shift system had been established in the aftermath of Hurricane Maria so that school buildings still able to function would be able to host multiple schools and so ensuring that children were not left outside of the academic system.

3.12. Discussing the clearance of fallen trees, Minister Douglas noted that legal protection for the forests made commercial saw mills uneconomic. Local saw mills had closed down prior to the passage of Hurricane Maria as the volume of trees that could be sourced from local forests was not sufficient to maintain the industry. In the aftermath of Hurricane Nevin, forest had been replanted for ecological, not commercial use. In the aftermath of Hurricane Maria, lumber was being sourced from Guyana at 0% duty.

3.13. Minister Douglas highlighted that Dominica's "Citizenship by investment" scheme had been unaffected by hurricane disruption. Transactions continued using this IT services platform. He also highlighted the Government's target to become climate resilient and the positive trade effects. Dominica was investing in geothermal power systems. Such underground infrastructure was not as susceptible to wind damage as overhead cables driven by diesel generators that were also a drain on foreign exchange. The prospect of green energy exports to neighbouring Martinique and Martinique by mid-2021 would provide a big boost to the economy and balance of payments position. Commitments had been made from various donors in this regard. The meeting closed with reference to the proposal made by the OECS at the WTO's 11<sup>th</sup> Ministerial Conference in Buenos Aires (MC11).

<sup>20</sup> Trade Policy Review Report by OECS- WTO Members, 18 September 2014, WT/TPR/G/299/Rev.1, World Trade Organization

<sup>21</sup> Trade Policy Review Report by OECS- WTO Members, 18 September 2014, WT/TPR/G/299/Rev.1, World Trade Organization

<sup>22</sup> "Post-Disaster Needs Assessment Hurricane Maria September 18, 2017 - A Report by the Government of the Commonwealth of Dominica" 15 November 2017, Available at: <https://www.gfdr.org/sites/default/files/publication/dominica-pdna-maria.pdf>

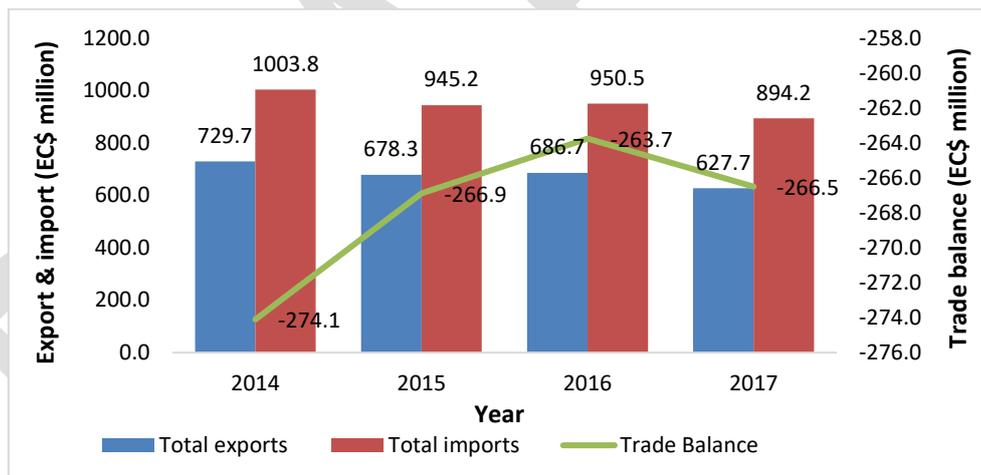
### 3.3 Overview of the macroeconomic and trade effects of crises

3.14. A narrow economic base, exposure to natural disasters and a high reliance on imports make the OECS-WTO Members vulnerable to exogenous shocks. The global financial crisis coupled with natural disasters in the region adversely impacted economic growth. Real GDP for the OECS contracted by nearly 10% between 2009 and 2010 before recovering slightly in 2011, and contracting again in 2012.

3.15. The contraction in GDP was due mainly to a decline in the tourist arrivals from North America and Europe, as well as lower per capita expenditure. Furthermore, the OECS-WTO Members were affected by financial sector problems in the region, including the collapse of the CL Financial Group (Trinidad and Tobago), which had a contagion effect on the OECS through its subsidiaries CLICO and BAICO. Antigua and Barbuda's financial sector was particularly hit by the collapse of two local banks and a large offshore banking institution. Mainly supported by increased services exports, GDP growth rebounded somewhat in 2013, when an estimated collective real growth rate of 1.2% was posted.<sup>23</sup>

3.16. Dominica's susceptibility to natural disasters is visible in change to trade indicators in the aftermath of the passage of the 2015 Tropical Cyclone Erika and 2017 Hurricane Maria. Both events put pressure on Dominica's trade balance. Estimates for the first and second quarters of 2018 show a continuously downward trend in exports and a further, large increase in imports. Surpluses in trade in services have been unable to offset a growing deficit in trade in goods. Improvements in the fiscal position prior to the 2017 disaster have thus been reversed, with the trade deficit again starting to grow. (See Figure 1: Trends in Dominica's trade and trade balance.)

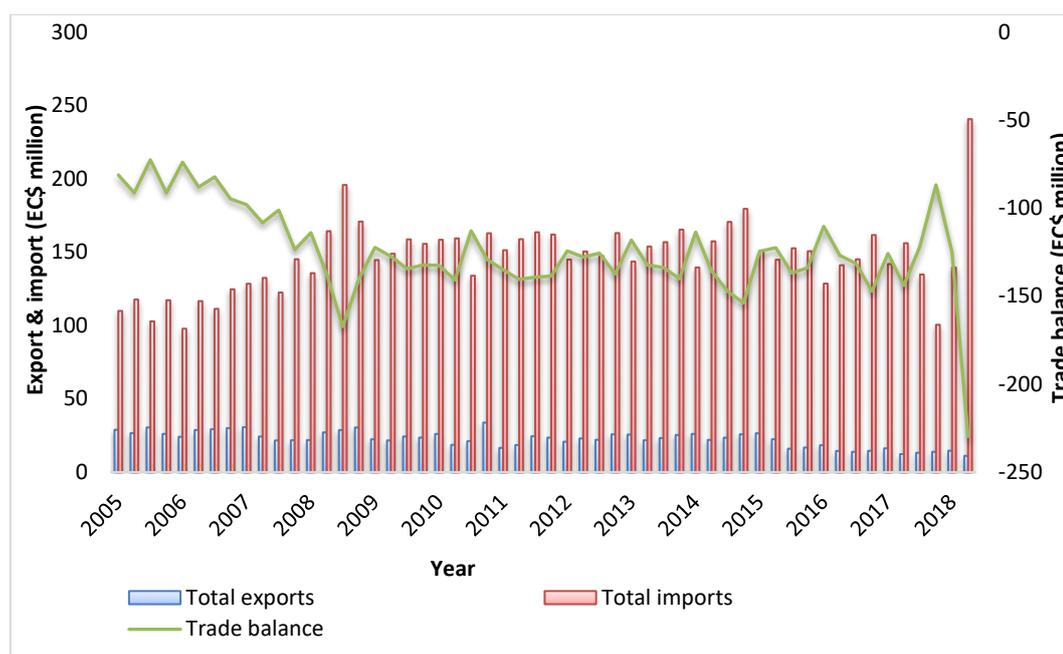
**Figure 1: Trends in Dominica's trade and trade balance.**



Source: WTO computation based on data from the Eastern Caribbean Central Bank.

3.17. Figure two highlights the impact of Hurricane Maria on Dominica's merchandise trade balance. In the aftermath of Hurricane Maria, the merchandise trade deficit has widened from just under EC\$100 million to close to EC\$ 250 million.

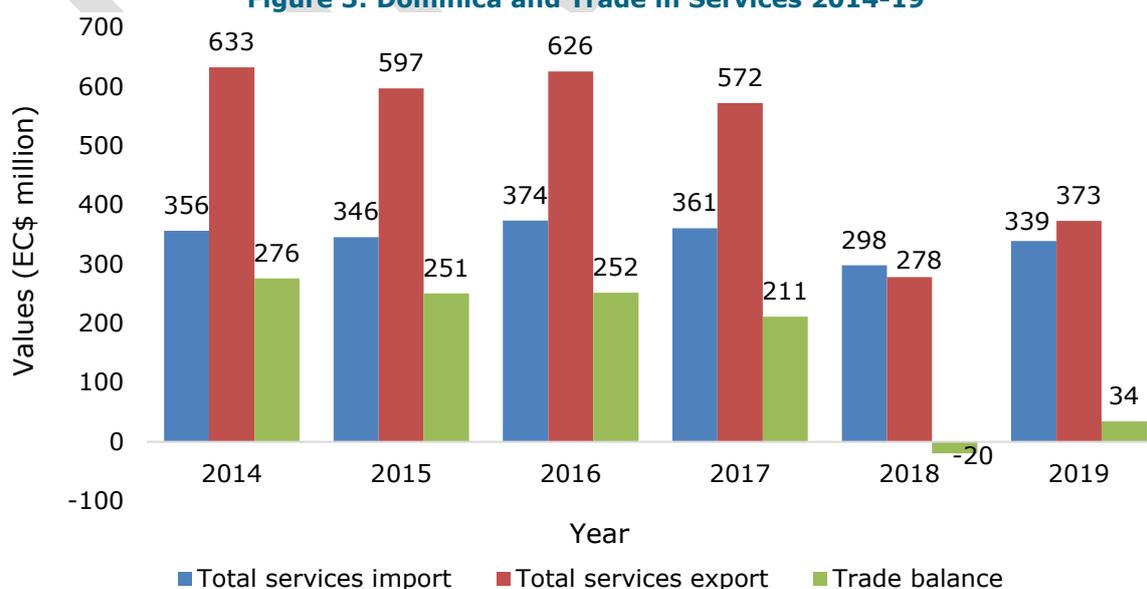
<sup>23</sup> "Trade Policy Review, Report by the Secretariat: OECS-WTO Members", 22 September 2014, WT/TPR/S/299/Rev.1

**Figure 2: Trends in Dominica's merchandise trade and trade balance.**

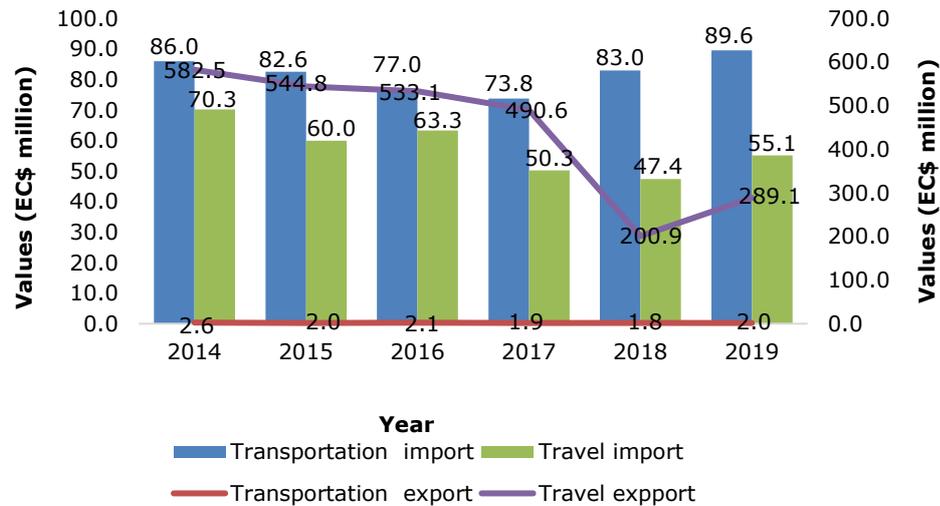
Source: WTO computation based on quarterly data from the Eastern Caribbean Central Bank.

3.18. Figures 3 and 4 further highlights that the 2017 hurricane also strongly affected trade in services. In 2018, the Eastern Caribbean Central Bank (ECCB) is projecting a decrease in both the import and export of services, with a resultant services trade deficit in the order of EC\$20 million. A small trade surplus in services is projected in 2019.

3.19. Hurricane Maria affected some specific sectors such as the transport and financial services which support the manufacturing and agricultural sectors. Based on the projections of the ECCB, the import of services related to the transport sector will increase by 17% from EC\$77 million in 2016 to approximately EC\$90 million in 2019, while export will remain virtually unchanged. Foreign exchange from travel will reduce by 46% from EC\$533 million to EC\$289 million with travel imports falling by 13% from EC\$63million to EC\$55 million.

**Figure 3: Dominica and Trade in Services 2014-19**

Source: WTO computation based on data from the Eastern Caribbean Central Bank Note: Figures for 2016 are preliminary, while figures for 2017 and 2018 are estimates and projections.

**Figure 4: Dominica and transport and travel services 2014-2019**

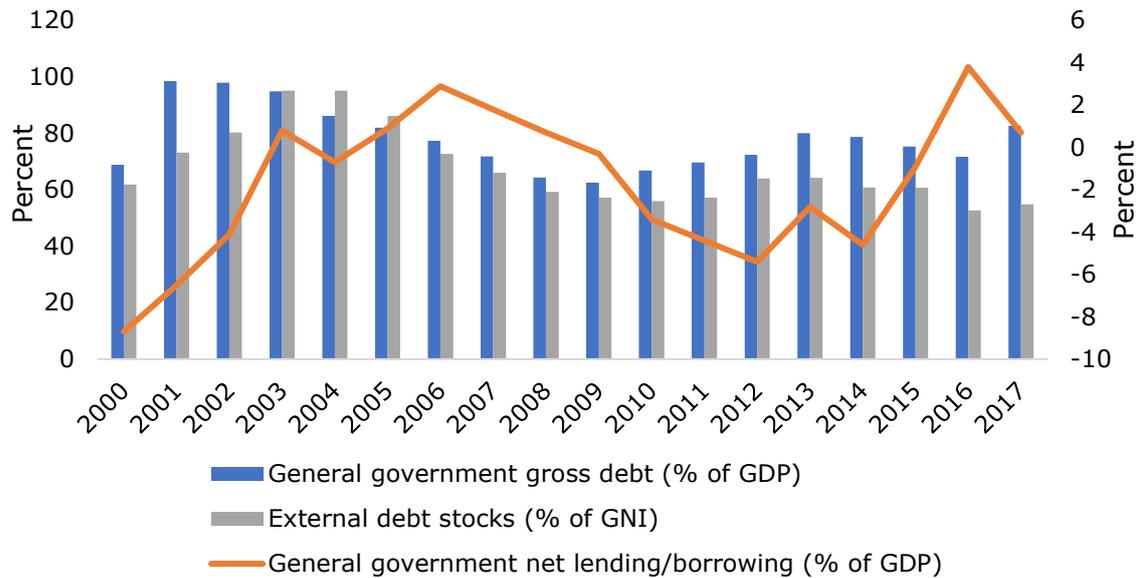
Source: WTO computation based on data from the Eastern Caribbean Central Bank. Note: Figures for 2016 are preliminary, while figures for 2017 and 2018 are estimates and projections

3.20. The value of construction services is expected to increase 62% by 2019 from its 2016 value of EC\$4.3 million. This is an indication of increased demand for construction services and materials for infrastructural development in the post hurricane recovery period.

3.21. Tropical storm Erika and Hurricane Maria represented a significant set-back for the government's efforts to bring external debt under better control. Dominica's debt had fallen from a high of 100 per cent of GDP in mid-2000s to around 63 per cent in 2009, following a large fiscal adjustment and debt-restructuring programme that was supported by two International Monetary Fund (IMF) programmes during 2002–2006. In the years before Hurricane Erika, the Dominican Government had reinvigorated efforts towards debt consolidation and was undertaking various reforms to meet the Eastern Caribbean Currency Union public debt target of 60 per cent of GDP by 2020. (Katafono,2018) <sup>24</sup>

<sup>24</sup> "Comparative Analysis of Disaster Risk Reduction and Management in Dominica and Vanuatu: Lessons for Small States", *Small States Digest*, No. 2018/01, Commonwealth Secretariat, London, <https://doi.org/10.14217/6f77cc82-en>.

**Figure 5: Trends in Dominica's debt indicators**



Source: WTO computation based on data from the World Bank and IMF

3.22. According to IMF predictions, output was projected to drop by 14 percent in 2018 and to take about 5 years to recover to pre-hurricane levels. The fall in output and government revenue, coupled with increased expenditure for rehabilitation and reconstruction, will lead to a substantial worsening of fiscal and external deficits. Given high debt, limited buffers, weak revenue, and urgent needs for reconstruction spending, the budget could become financially constrained and unable to sustain adequate investment. (IMF 2018 <sup>25</sup>) Table 4 below gives the IMF's predictions for the economy of Dominica out to 2023.

<sup>25</sup> Dominica : 2018 Article IV Consultation-Press Release and Staff Report, IMF Country Report No. 18/265 <https://www.imf.org/en/Publications/CR/Issues/2018/09/05/Dominica-2018-Article-IV-Consultation-Press-Release-and-Staff-Report-46204>

**Table 4: Projected economic and financial indicators for Dominica, 2014-23**

	2014	2015	2016	2017	Projected					
					2018	2019	2020	2021	2022	2023
<b>Output and prices</b>										
Real GDP 1/	4.2	-3.7	2.6	-4.7	-14.1	9.4	6.8	3.6	2.3	1.5
Nominal GDP 1/	3.9	1.3	8.7	-4.1	-12.9	11.2	8.7	5.5	4.4	3.2
<b>Central government balances</b>										
Revenue 2/	27.1	31.5	47.1	46.8	37.0	34.8	27.8	27.2	27.3	27.3
Expenditure	31.7	32.4	43.3	46.1	41.0	38.9	36.2	34.2	26.3	26.5
Primary balance	-3.0	1.0	5.4	2.0	-2.1	-2.3	-6.6	-5.2	2.9	2.6
Overall balance (incl. ND cost buffers), of which:	-4.6	-0.9	3.8	0.7	-5.5	-5.6	-9.9	-8.5	-0.5	-0.7
Central government debt (incl. guaranteed) 3/	78.7	75.3	71.7	82.7	87.7	83.3	86.1	87.8	87.1	85.2
External	61.0	58.1	54.7	66.0	71.1	68.1	72.8	75.8	75.7	74.7
Domestic	17.7	17.1	17.1	16.7	16.6	15.2	13.2	12.1	11.4	10.5
<b>Balance of payments 4/</b>										
Current account balance, of which:	-7.1	-1.9	0.8	-12.5	-31.7	-22.1	-20.4	-21.3	-14.2	-11.9
Exports of goods and services	51.6	50.1	48.3	42.6	33.2	41.4	44.2	43.4	43.7	43.7
Imports of goods and services 5/	63.4	58.8	54.0	67.2	83.1	81.0	75.7	70.3	61.5	58.5
External debt (gross) 6/	83.7	86.5	77.9	88.8	99.6	95.6	99.7	101.9	102.2	101.0
Net imputed international reserves: End-year (millions of U.S. dollars)	99.9	125.4	220.9	210.9	210.7	208.9	206.5	202.1	210.6	215.3
Months of imports of goods and services	3.6	4.8	8.4	6.8	6.3	5.7	5.6	5.6	6.4	6.6
<b>Saving-Investment Balance</b>	-7.1	-1.9	0.8	-12.5	-31.7	-22.1	-20.4	-21.3	-14.2	-11.9
Saving	7.6	14.3	20.0	10.8	-6.3	-1.0	-2.2	-6.7	-5.0	-6.0
Investment	14.8	16.2	19.2	23.3	25.4	21.1	18.2	14.6	9.2	5.9

Sources: Dominican authorities; Eastern Caribbean Central Bank (ECCB); and Fund staff estimates and projections.

1/ At market prices.

2/ Data for fiscal years from July to June.

3/ Includes estimated commitments under the Petrocaribe arrangement with Venezuela.

4/ BoP data prior to 2014 are compiled on BPM5 basis and revised to conform with BPM6 methodology but are not fully comparable.

5/ Includes public capital expenditure induced imports from 2019 onwards to account for possible mitigation of natural disasters.

6/ Comprises public sector external debt, foreign liabilities of commercial banks, and other private debt.

Source: IMF 2018 <sup>26</sup>

3.23. After Hurricane Maria on September 18, 2017, exports of goods and services collapsed (falling 32%) due to severe damage, notably to agriculture and tourism infrastructure. Imports and transfers increased by 7.5% due to post-hurricane reconstruction needs and higher external support, respectively. Given projected increases in imports for reconstruction and decreased

<sup>26</sup> Dominica : 2018 Article IV Consultation-Press Release and Staff Report, IMF Country Report No. 18/265 <https://www.imf.org/en/Publications/CR/Issues/2018/09/05/Dominica-2018-Article-IV-Consultation-Press-Release-and-Staff-Report-46204>

Citizenship-By-Investment (CBI) revenue, the current account deficit is expected to increase further to 31.7 percent of GDP in 2018, then decline from 2019. (IMF 2018 <sup>27</sup>)

3.24. The impact of the hurricane presents Dominica with severe sustainability challenges, compounded by systemic financial risk. The output collapse and the costs of reconstruction will lead to large fiscal and current account deficits. Public debt is expected to rise near 90 percent of GDP with the identified financing, increasing fiscal and external sustainability challenges. In light of the high debt burden and the significant risks to the debt sustainability outlook, Dominica is assessed at a "high risk of debt distress." IMF 2018 <sup>28</sup>

3.25. The World Bank approved a financing package of US\$115 million over 3 years, of which US\$75 million are IDA credits and the remainder, IDA grants. The Caribbean Development Bank (CDB) is considering topping up an undisbursed US\$50 million loan with US\$40 million from its Special Development Fund as well as US\$0.2 million in grants. Other sources, including bilateral grants and loans, are expected to total US\$111 million. (IMF 2018 <sup>29</sup>) Assistance in the immediate response to Hurricane Maria included air and marine support from Canada, the European Union, the Netherlands UK, and Venezuela, and the private sector entities such as LIAT and Tropical Shipping. (CDEMA 2018)

### Box 2: World Bank support for Dominica

On 13 April 2018, the World Bank's Board approved two emergency support operations totalling US\$65 million for restoring agriculture livelihoods, strengthening resilience, and rebuilding houses destroyed by Hurricane Maria. This represents the World Bank's highest ever financing for Dominica and was part of a larger US\$115 million package of support that included financing of US\$65 million in concessional terms and US\$50 million in grant financing from the International Development Association's (IDA) Crisis Response Window.

The Emergency Agricultural Livelihoods and Climate Resilience project (US\$25 million) will help farmers and fisherfolk to restore their agriculture and fishing production and systems, and adopt climate smart practices. The Housing Recovery project (US\$40 million) will focus on rebuilding houses and improving the application of resilient building practices. The financing for these projects includes the US\$ 50 million of grant financing.

In the immediate aftermath, the World Bank mobilized a disaster risk management team to help the Governments of the most affected islands, Antigua and Barbuda and Dominica, to conduct rapid damage and needs assessments, in collaboration with the United Nations, the European Union, the Eastern Caribbean Central Bank, the Caribbean Disaster Emergency Management Agency and the Caribbean Development Bank. At the same time, US\$7 million contingent emergency response component of an existing emergency project was immediately activated for Dominica.

In the Caribbean, many financial tools developed by the World Bank are being used to get quick access to finances for reconstruction. These include emergency funds, insurance instruments, and contingency lines of credit. Eight countries have received pay-outs of more than \$50 million from the Caribbean Catastrophe Risk Insurance Facility, a regional risk pooling mechanism. Dominica received a pay-out of US\$19.3 million after Hurricane Maria.

Source: World Bank<sup>30</sup>

<sup>27</sup> Dominica : 2018 Article IV Consultation-Press Release and Staff Report, IMF Country Report No. 18/265 <https://www.imf.org/en/Publications/CR/Issues/2018/09/05/Dominica-2018-Article-IV-Consultation-Press-Release-and-Staff-Report-46204>

<sup>28</sup> Dominica : 2018 Article IV Consultation-Press Release and Staff Report, IMF Country Report No. 18/265 <https://www.imf.org/en/Publications/CR/Issues/2018/09/05/Dominica-2018-Article-IV-Consultation-Press-Release-and-Staff-Report-46204>

<sup>29</sup> Dominica : 2018 Article IV Consultation-Press Release and Staff Report, IMF Country Report No. 18/265 <https://www.imf.org/en/Publications/CR/Issues/2018/09/05/Dominica-2018-Article-IV-Consultation-Press-Release-and-Staff-Report-46204>

<sup>30</sup> World Bank Press Release, 'World Bank Provides US\$65 million for Dominica's Post-Maria Reconstruction' ( April 13, 2018). Available at <https://www.worldbank.org/en/news/press-release/2018/04/13/world-bank-provides-us65-million-for-dominicas-post-maria-reconstruction>

3.26. Over 400 high-level representatives from governments, multilateral and civil society organizations and the private sector gathered at UN on 21 November 2017 at the "CARICOM-UN High-level Pledging Conference: Building a more Climate-Resilient Community" to mobilise a broad partnership to support reconstruction efforts after hurricanes Irma and Maria decimated several Caribbean Countries. Support included over US\$1.3 billion in pledges and over \$1 billion in loans and debt relief.

3.27. Responding to the urgent needs, over US\$1.35 billion were pledged by established partners and new ones, Estimated amounts: \$702 million from The Netherlands; \$352 million from the European Union; \$140 million from the World Bank; \$78 million from Canada; \$30 million from China; \$27 million from Mexico; \$12 million from Italy; \$4.3 million from the United States; \$4 million from Japan; \$1 million from Kuwait; \$2 million from India; \$1 million from Venezuela; \$1.2 million from Belgium; \$1 million from Chile; \$500,000 from Denmark; \$300,000 from Colombia; \$250,000 from Haiti; US\$ 250,000 from New Zealand; \$200,000 from Brazil; \$150,000 from Kazakhstan; \$100,000 from Romania; \$100,000 from Portugal and \$20,000 from Serbia. Moreover, the Inter-American Development Bank pledged US\$1 billion in loans, Italy, \$30 million in soft loans while Venezuela forgave \$1 million in debt.<sup>31</sup>

### 3.4 Meetings with public and private sector stakeholders

3.28. On 27-28 August 2018, the WTO research team held a series of consultations with public and private sector stakeholders. The following section relates the main issues arising from the consultations, organized according to trade issues arising in disaster response, disaster recovery and disaster resilience. Issues identified in the consultations are supplemented with information from other sources on the same topics.

### 3.5 Trade issues in disaster response

3.29. Initial challenges in coordination of relief were reported with the international humanitarian community at the national level. This impacted the response efforts in the early stages of the operations. Information on the bilateral efforts at regional and extra-regional levels were not always shared in time to allow for leveraging to support for ongoing operations through the Regional Response Mechanism (RRM) thus not allowing for a full lens on how the total humanitarian needs were being met. (CDEMA 2017)

3.30. Many humanitarian organisations without knowledge or experience of the region and its mechanisms and procedures for emergency management arrived and started relief operations without reference to the governments or RRM. Though well-meaning, this support resulted in a duplication of efforts. This was also true of some staff of humanitarian entities practicing in the region. The difference in understanding of systems, capacities and roles at the outset of the operations created coordination and trust issues. The efforts to streamline and respond to the demands of the external actors for logistical support became a burden to the local system. Once the mechanisms for integrating the international humanitarian actors in the local system, through sector level or thematic focus areas, the reinforcement of local capacity was better realized. (CDEMA 2017)

3.31. In Dominica national emergency management actors and local authorities were heavily impacted themselves which affected their coordination capacity. The extensive loss of the communications infrastructure in Dominica and the Virgin Islands created major constraints in the RRM operations in coordination, relief planning, logistics and reporting. (CDEMA 2017)

3.32. The Dominican Air and Seaports Authority (DASPA), suffered damages to its assets. The ports of Dominica serve as the main cargo entry point for all trade, and the island's economy survives by importing nearly all goods. The port of Woodridge Bay, close to Roseau, is the only container port on Dominica, and is the only entryway for large machinery, large shipments of merchandise and refrigerated food items. Since Dominica is not really served by any passenger aircraft belly cargo

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<sup>31</sup> "Caribbean can only 'build back better' with international support and urgent climate action, UN, CARICOM Chiefs and Heads of Government", 22 November 2017, Resilient Caribbean Conference, <https://resilientcaribbean.caricom.org/caribbean-can-only-build-back-better-with-international-support-and-urgent-climate-action-un-caricom-chiefs-and-heads-of-government/>

capacity, except for dedicated cargo flights, the ports of Dominica are the only way critical imports can enter the country. (Commonwealth of Dominica, 2017)<sup>32</sup>

3.33. Public services and transport were severely affected in light of the damage sustained by electricity and, water and sanitation infrastructure. As of end-April 2018, the electricity company reported that, while most generation and transmission facilities been repaired, their load was 40 percent of pre-hurricane levels because many consumers had not rebuilt their properties sufficiently to restore consumption. (IMF 2018)<sup>33</sup>.

3.34. Debris management was identified by CDEMA as a major challenge in all of the states impacted by the September 2017 hurricanes. The regional military assisted in debris clearance, working at night in Dominica, thus enabling more rapid clearing of debris. At the close of operations, the country will be faced with the challenge of disposing of large quantities of plastic waste from bottled water, used tarpaulins and packaging of relief items, as well as expired medication and other unsolicited and unusable relief supplies. One recommendation is to include debris management and environmental sustainability considerations in national disaster management plans. Such considerations should also be included in the plans of humanitarian organisations. (CDEMA 2017)

3.35. The shipping sector losses are comprised of two elements: (1) loss of traffic, some of it due to infrastructure damages; and, (2) a government moratorium on charges for non-commercial activity. Since most of the port's shipments are now related to the relief and rebuild efforts after Maria, revenues are 25 percent of the baseline, indicating a 75 percent revenue loss. There is no income from cruise ships since there is no infrastructure to receive them. (Commonwealth of Dominica, 2017)<sup>34</sup>

### Box 3: ICT infrastructure

Several organizations and groups reported providing emergency communications to Dominica, including the [ITU](#), [Telecomms Sans Frontier](#), [Emergency Telecommunications Cluster](#). The extensive damage to telecommunications infrastructure and the slow restoration by service providers raises questions of the robustness of the infrastructure. It was not clear which service providers had equipment and which locations suggesting the need for better information on the location and status of critical facilities.

Source: ITU<sup>35</sup>

3.36. One issue reported by stakeholders was congestion at the main port outside Roseau. The port sustained significant physical damage and struggled to manage the post-hurricane surge in shipments — which jumped from an average of 80 containers per week to a peak of 300 containers per week. (IMF 2018)<sup>36</sup>.

3.37. A mixture of physical hurricane damage, limited storage space and procedural shortcomings appear to have created a major issue with border clearance of containers. Stakeholders reported waits of six weeks or more before landed containers could be released. Stacking of relief items and regular commercial trade together allied to storage constraints led to difficulties in physical tracking and recovery of containers that rapidly surpassed the physical limits of the port. A further concern

<sup>32</sup> "Post-Disaster Needs Assessment Hurricane Maria September 18, 2017 - A Report by the Government of the Commonwealth of Dominica" 15 November 2017, Available at: <https://www.gfdr.org/sites/default/files/publication/dominica-pdna-maria.pdf>

<sup>33</sup> Dominica : 2018 Article IV Consultation-Press Release and Staff Report, IMF Country Report No. 18/265 <https://www.imf.org/en/Publications/CR/Issues/2018/09/05/Dominica-2018-Article-IV-Consultation-Press-Release-and-Staff-Report-46204>

<sup>34</sup> "Post-Disaster Needs Assessment Hurricane Maria September 18, 2017 - A Report by the Government of the Commonwealth of Dominica" 15 November 2017, Available at: <https://www.gfdr.org/sites/default/files/publication/dominica-pdna-maria.pdf>

<sup>35</sup> International Telecommunications Union, *Assessment of Emergency Telecommunication Plans and systems in the Caribbean Region*, December 2017. Available at [https://www.itu.int/en/ITU-D/Regional-Presence/Americas/Documents/ACTVTS/DLV/ITU\\_Assessment\\_ET\\_Caribbean.pdf](https://www.itu.int/en/ITU-D/Regional-Presence/Americas/Documents/ACTVTS/DLV/ITU_Assessment_ET_Caribbean.pdf)

<sup>36</sup> Dominica : 2018 Article IV Consultation-Press Release and Staff Report, IMF Country Report No. 18/265 <https://www.imf.org/en/Publications/CR/Issues/2018/09/05/Dominica-2018-Article-IV-Consultation-Press-Release-and-Staff-Report-46204>

that arose was with the return of empty containers. A build-up of empty containers further aggravated physical space constraints.

#### **Box 4: Steel toe-capped boots**

In the wake of Tropical Storm Erika in 2015, the Dominican government had planned to reduce tariffs on certain safety items to improve health and safety within the building sector. This change had been meant to take effect on 1 October 2017. In the aftermath of Hurricane Maria on 17 September, a list of goods, and approved organizations for full or partial duty exemption, was devised. Safety equipment, such as steel toe capped boots, were not included in the list of products for tariff exemptions. A point made strongly by a representative of the Waterfront and Allied Workers Union was that the port was an unsafe working environment in the aftermath of the hurricane. Extending business operations in this dangerous situation entailed serious health and safety risks for dock workers.

Source: National consultations, Roseau, 27 August 2018

3.38. Private sector stakeholders at the national consultation stressed that there is a critical link between the port and the ability of business in Dominica to operate. In regular times, the Dominican economy is import dependent, with imports accounting for 56.2% of GDP in 2017.<sup>37</sup> Machinery and material imports were required to remove physical waste generated by the Hurricane and to replace damaged business assets before economic activity could commence. Examples were given in relation to agro-processing, furniture manufacturing, paper products, power generation, telecoms, and the hotel and hospitality sector. Against this backdrop, various private sector respondents considered port operations as a critical bottleneck to recovery.

3.39. The decision not to extend working hours or to streamline documentation requirements and procedures was a point of contention for some private sector operators. Another issue cited was that customs clearance could only be completed once duties and charges had been settled in full. The financial distress of firms, in particular micro, small and medium-sized enterprises (MSMEs), in the immediate aftermath of the hurricane meant many struggled to find the necessary funds to finance imports. In the view of some, settlement of import charges in full at the time of importation added further to their financial distress felt.

3.40. Several comments were made by the private sector in relation to policies on the exemption of relief, commercial and privately imported items from border duties and charges. A first retroactive decision on relief consignments was issued by Cabinet Decision on 5 October 2017. This Decision was updated and the list of conditions varied by subsequent Decisions issued on 19 October, 7 November, 14 November, 21 and 27 March 2018. Table 5 below outlines the list the items eligible for waiver of some or all duties and charges on 8 November 2017.

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<sup>37</sup> Imports of goods and services as % of GDP, Dominica 2017, World Bank Open Data, <https://data.worldbank.org/>

**Table 5: List of items eligible for duty exemptions**

List or relief items on which import duty, value added tax, customs service charge and environmental surcharge were exempted on transfers between organizations	List of commercial imports on which import duty and value added tax were waived, but customs service charge and environmental surcharge maintained	
<ul style="list-style-type: none"> <li>• Foodstuff</li> <li>• Clothing</li> <li>• Linen</li> <li>• Mattresses (three per household)</li> <li>• Toiletries</li> <li>• Domestic refrigerators (one per household)</li> <li>• Domestic stoves (one per household)</li> <li>• Water pumps</li> <li>• Generators (one per household but a permit from IRC is needed for generator more than 20,000 KVA)</li> <li>• Portable air conditioning units (limited to business houses, companies and agencies)</li> <li>• Chainsaws</li> <li>• Tarpaulins</li> </ul>	<ul style="list-style-type: none"> <li>• Building blocks or bricks</li> <li>• Cement</li> <li>• Lumber</li> <li>• Plastic tiles</li> <li>• Ceramic tiles</li> <li>• Panels</li> <li>• Partition boards</li> <li>• Ceiling tiles</li> <li>• Galvanize sheets and capping</li> <li>• Plastic guttering</li> <li>• Steel rods</li> <li>• PVC pipes</li> <li>• Electrical conduits and fittings</li> <li>• Steel tubes and pipe fittings</li> <li>• Copper tubes and pipe fittings</li> <li>• Taps and faucets</li> <li>• Valves</li> </ul>	<ul style="list-style-type: none"> <li>• Plastic sanitary baths</li> <li>• Sinks</li> <li>• Lavatories</li> <li>• Wash basins</li> <li>• Aluminium, Plastic, Steel and Wooden windows and doors</li> <li>• Aluminium, Plastic and Steel water tanks</li> <li>• Nails and screws</li> <li>• Electricals (lamp fittings, bulbs, switches, fuses, junction boxes, plugs, connectors)</li> <li>• Locks</li> <li>• Hinges</li> <li>• Water heaters</li> <li>• Paint</li> <li>• Vanish</li> <li>• Solar panels</li> </ul>

Source: Dominica News<sup>38</sup>

3.41. Concerns raised by private sector stakeholder focused on an absence of information about the duration of the waivers in the initial government decisions, legal uncertainty as to their scope (e.g. did the waiver apply when the good was ordered or landed), mandatory registration for VAT rebates and the complexity of administering a system of partial exemptions for commercial imports – complications which further delayed the release of containers.

3.42. At the national consultation, a vigorous complaint was made by an eco-lodge owner who had ordered paint from a non-CARICOM supplier when this item was zero rated for tariff purposes and whose consignment had been delivered after the expiry of the waiver. The lodge owner had had to settle an import bill in excess of 135% of the value of the paint itself – an unforeseen cost he could ill afford.

3.43. Some private sector stakeholders suggested that a prior agreement on an approved list of emergency relief goods to be tax/duty exempted would speed up quick response and recovery in

<sup>38</sup> "Government Waives import duties on relief items", 8 November 2017, Dominica News Online. Available at: <http://dominicanewsonline.com/news/homepage/news/general/govt-waives-import-duties-on-relief-items/>

future situations. A word of caution was noted here by some in relation to the differing degree of damage incurred by Tropical Storm Erika (in which the government had been able to procure locally and use prepositioned stocks to cover needs) and Hurricane Maria, (which combined with acts of looting, had inflicted far more serious damage to commercial stocks and transport infrastructure).

3.44. A further complicating factor for customs was damage to information technology systems at a time when the customs administration was migrating to an updated customs classification code. One reason for a lack of data for maritime vessel calls after Maria is because data could not be completed in the normal computerized format, due to the destruction of offices and the related IT technology. (Commonwealth of Dominica, 2017)<sup>39</sup> Damage to airport scanners and other clearance equipment was also incurred. Table 6 below shows the revenue loss of the waivers over the period 20 September 2017 to 20 June 2018 which totalled some US\$18.8 million or EC\$50.8 million in Eastern Caribbean dollars.

**Table 6: Revenue Forgone from Duty Exemptions in Eastern Caribbean Dollars**

Period	Cost Insurance Freight value	Import Duty Other	Environmental Surcharge	Customs Service Charge	Excise Tax	Value Added Tax	Total Forgone
20/09/17 to 19/03/18	122,035,436	21,386,503	243,399	649,379	1,064,441	21,764,162	45,107,883
20/03/18 to 20/06/18	43,530,613	4,348,231	8,756	23,408.29	10,239	1,349,326	5,739,961
Total	165,566,049	25,734,734	252,155	672,787	1,074,680	23,113,488	50,847,844

Source: Government of Dominica

3.45. The 2014 Trade Policy Review of the Organization of Eastern Caribbean States (OECS) highlighted the dependence of OECS states on taxes on foreign trade, the application of specific duties, import licences and price controls.<sup>40</sup> Dominica ratified the Trade Facilitation Agreement (TFA) on 28 November 2016. Just over 50% of commitments have been notified in category A (i.e. they entered into force on the entry into force of the TFA on 22 February 2017). Provisions related to the implementation of Trade Facilitation Measures for Authorized Operators were notified under category B, with an indicative date for implementation of 31 December 2019 and definitive date for implementation of 31 December 2021. Other provisions were notified in category C for which technical assistance is being sought, with implementation dates depending on the provision and the requested support.<sup>41</sup>

### 3.6 Trade issues in disaster recovery

3.46. Output is projected to fall by over 14 percent in 2018, largely due to the steep decline in agriculture and tourism services. Based on sectoral assessments, the IMF projects that output should recover to pre-hurricane levels within 5 years, although it could take longer. The IMF identify several factors as holding back recovery: restoring electricity services; weak port logistics capacity delaying importation of construction materials; insufficient labour for reconstruction, particularly workers with specialized skills; under-insurance of the private sector and slow pay-out of claims; limited access

<sup>39</sup> "Post-Disaster Needs Assessment Hurricane Maria September 18, 2017 - A Report by the Government of the Commonwealth of Dominica" 15 November 2017, Available at: <https://www.gfdr.org/sites/default/files/publication/dominica-pdna-maria.pdf>

<sup>40</sup> "Trade Policy Review, Report by the Secretariat: OECS-WTO Members", 22 September 2014, WT/TPR/S/299/Rev.1

<sup>41</sup> [https://www.tfadatabase.org/uploads/notification/NDMA1\\_3.pdf](https://www.tfadatabase.org/uploads/notification/NDMA1_3.pdf)

to private financing due to the fall in household and investor income after the hurricane. (IMF 2018<sup>42</sup>)

3.47. Some stakeholders at the private sector consultation also pointed to competition between domestically-produced goods and relief goods distributed to the population by aid agencies as unhelpful. In contrast to the situation post Tropical Storm Erika, few relief items were sourced locally, even when stocks existed and local suppliers were keen to recommence trading. Examples were given by a bottled water supplier and paper products manufacturer. Both companies noted that markets were heavily disrupted by the arrival of disaster relief in first four months after Hurricane Maria, but that competition effects lasted upwards of nine months before normal market conditions returned.

3.48. Several participants at the consultation noted the use of an aid voucher scheme by UNDP and UNOCHA that could be used to purchase goods. While welcoming the scheme, some highlighted the limited stock of essential items (such as food and medicine) in local markets in the aftermath of the Hurricane Maria – a situation aggravated by business looting in the aftermath of the hurricane. In the opinion of some participants, care needed to be taken in relation to the sequencing of a move from aid in the form of goods to aid in the form of cash.

3.49. Several stakeholders highlighted that there was a shortage of materials and equipment immediately after Hurricane Maria. Additionally, there was a lack of labour, both unskilled and skilled. The private sector had needed to recruit labour and services from companies overseas. At that time, the issue was how to accelerate importing processes of labour, especially skilled labour, such as medical doctors. The cost of importing this labour was considered high by some respondents.

3.50. For some businesses, the challenge of recovery from Hurricane Maria was further complicated by the fact that many were still suffering the effects of the 2015 Tropical Storm Erika when Maria struck in 2017. A case in point is that of Dominica Coconut Products (DCP Ltd) at Belfast, home to Colgate Palmolive's product lines and the island's leading manufacturing employer. Tropical Storm Erika caused serious damage to the soap and detergent manufacturing plant. Flooding breached sea-defence walls invading the compound with surges exceeding six feet in the various buildings and offices, ruining machinery and supplies.<sup>43</sup> On 30 November 2015, Colgate Palmolive announced the closure of the DCP plant, with the loss of more than 90 jobs.<sup>44</sup>

3.51. In view of the importance of DCP's operations for manufacturing capacity and foreign exchange, the Government of Dominica acquired DCP Ltd from Colgate Palmolive in late 2015. In August 2017, DCP restarted operations in private hands after the government provided a US\$2 million loan to a local investor using funds generated through the Citizenship by Investment (CBI) Program.<sup>45</sup> Unfortunately, Hurricane Maria inflicted further damage on the firm, notably to the jetty used to receive inputs used in manufacturing operations such as tallow.<sup>46</sup> Nevertheless, the firm has continued operations and is selling soap and detergent products in Dominica and across the region. Box 6 below details fiscal incentives available for manufacturing investment.

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<sup>42</sup> Dominica : 2018 Article IV Consultation-Press Release and Staff Report, IMF Country Report No. 18/265 <https://www.imf.org/en/Publications/CR/Issues/2018/09/05/Dominica-2018-Article-IV-Consultation-Press-Release-and-Staff-Report-46204>

<sup>43</sup> "Impact of Tropical Storm Erika on Dominica – The Private Sector Glance, 6 November 2015, OECS Business Focus No. 10" Available at: <http://oecsbusinessfocus.com/impact-of-tropical-storm-erika-on-dominica-the-private-sector-glance/>

<sup>44</sup> "Dominica Coconuts Products shuts down operations", 19 November 2015, The Dominican.net

<sup>45</sup> "Dominica government moves to takeover local Colgate-Palmolive operations", 22 November 2015, Caribbean 360 Available at: <http://www.caribbean360.com/news/dominica-government-moves-to-takeover-local-colgate-palmolive-operations#ixzz5ZGg5GM3w>

<sup>46</sup> "DCP Successors procures \$2 million shipment of soap-making ingredients", 18 October 2018, Dominica New Online.

### Box 5: Fiscal incentives available for manufacturing investment

Businesses involved in Manufacturing can enjoy a 15-year tax holiday benefit and other incentives under the Fiscal Incentives Act. The Government of Dominica offers a generous fiscal incentive package for investment in this area:

- Tax holiday up to 15 years;
- 100% profit repatriation;
- Import duty exemptions on capital goods
- Machinery & equipment, specialized vehicles, safety equipment, building.

Source: Invest Dominica Authority<sup>47</sup>

3.52. A further example of a business that decided to shutter operations in Dominica in the aftermath of extreme weather is Ross University School of Medicine. On 3 August 2018, (i.e. some 11 months after the passage of Hurricane Maria), the medical school announced it planned to relocate to a new campus on Barbados. Ross Medical School first established operations on Dominica in 1978. The Government and Adtalem Global Education (the owner of the Ross Medical School) had reached a 25-year agreement in 2014 that came with a wide range of concessions, including redevelopment of the campus. The University reported a student population of more than 2,500 students.

3.53. In the Caribbean, offshore medical universities (OMUs) target students that are mostly non-Caribbean, and intend to practice medicine in North America. Most OMUs offer dual-campus programmes, whereby the theoretical aspect is completed in the Caribbean while clinical clerkships are completed at teaching hospitals in the United States. In September 2017, there were one hundred and one medical universities in the Caribbean, offering programmes leading to an award of Bachelor/Doctor of Medicine and Bachelor of Surgery degrees. OMUs act, in effect, as a substitute for US medical universities and typically construct their degree programme based upon the US curriculum. Ross University School of Medicine was one of only four Caribbean schools to be recognized by the US Department of Education's National Committee on Foreign Medical Education and Accreditation as providing education that is equivalent to the US medical universities.<sup>48</sup>

3.54. Stakeholders at the national consultation noted that there was no agreed figure for Ross' contribution to Dominica's GDP. Some participants placed the figure as high at 15-20% of GDP, once the indirect economic benefits were included. A value chain analysis conducted by UNECLAC of Caribbean OMU's identified the following benefits for host country economies, including:

- Corporate and student taxes paid by the medical universities and their enrolled students;
- Income tax paid by the local faculty in the medical universities;
- Tariffs charged on imported products;
- Expenditure by students and faculty on accommodation, living expenses, and entertainment.
- Increased options to access medical education for some home country students.
- Increase in employment opportunity for some citizens of the host country. This increase could be linked to positive externalities related to the construction of medical universities, as well as the number of staff employed at the university in various professional categories.
- Provision of consumer services, such as taxi services, car rentals, accommodation rentals, hair grooming, cosmetic and beauty services, and recreational activities.

<sup>47</sup> Available at: <http://www.investdominica.com/investment-opportunities/manufacturing-sector/manufacturing/>

<sup>48</sup> 'A global value chain analysis of offshore medical universities in the Caribbean', Sheldon McLean, Don Charles, (January 2018), UNECLAC Sub Regional Headquarters for the Caribbean. Available at <https://www.cepal.org/en/publications/43311-global-value-chain-analysis-offshore-medical-universities-caribbean>

3.55. Hurricane Maria inflicted significant damage to Ross University School of Medicine campus, its buildings and infrastructure. The extreme weather event led to the evacuation off the island of students and faculty. Since then, the university had been obliged to operate from temporary locations in St Kitts and Nevis and Tennessee in the US while damage assessment, repair and rebuilding has occurred on the Dominic campus.<sup>49</sup>

3.56. After discussion with the Government of Barbados, Adtalem Global Education decided to relocate Ross's operations to Barbados starting the academic year September 2018-2019. Significant efforts were made by the government to secure Ross's continued operation on the island, notably through the offer of additional incentives. In October 2018, the government reported that it was in preliminary discussions with potential investors to take over the site. Before a new lease can be agreed, an agreement needs to be reached with Ross Medical College on transfer of ownership of the buildings on the land it leased from the government.<sup>50</sup>

3.57. During the consultation with the private sector, they welcomed government efforts to put in place financing through the Dominica Agricultural and Industrial Development (AID) Bank that firms could access in the wake of the Hurricane. However, a concern raised was that this funding could not be used to refinance existing debts – a factor which thus limited the ability of firms to assume new obligations and recommence trading. Hurricane Maria struck at a time when many businesses had taken on debt in preparation of a new tourist season. Some MSMEs reported that they had not been able to reopen their businesses due to lack of access to capital. According to one stakeholder, a survey conducted by Dominica Manufacturers' Association revealed that the manufacturing sector primarily needed assistance to access finance.

#### Box 6: Access to finance

The Dominica Agricultural and Industrial Development (AID) Bank is providing concessional financing for post-Maria recovery. It offers financing to government-identified sectors including agriculture, tourism, manufacturing, housing, and education. The Bank is funded primarily by multilateral institutions, including the Caribbean Development Bank. The central government also provides funds for on-lending to promote development and post-Maria recovery.

The AID bank asset portfolio was severely affected by Hurricane Maria. A preliminary assessment indicated that approximately 45 percent of properties in the AID-bank portfolio suffered physical damage, with the largest shares in agriculture (about 80 percent) and manufacturing (about 60 percent), and the lowest in housing (about 30 percent) and transportation (about 25 percent).

To help clients recover, the Bank granted a payment moratorium of 6 months to the agricultural sector and 4 months to other sectors. Non-performing loans had increased from 25 percent before the hurricane to 29 percent as at end-April 2018, with a further increase reportedly likely. Banks and credit unions are not expected to provide significant financing due to the deterioration of asset quality and household incomes after the hurricane – which exacerbated long-standing structural factors limiting access to credit.

Source: IMF<sup>51</sup>

3.58. Another factor limiting private sector recovery noted by the IMF and repeated at the national consultations was delay and uncertainty regarding insurance pay-outs. The IMF reported that 33 percent of claims, mostly property-related, were still outstanding in August 2018 - claims totalling approximately 15 percent of GDP. Similar concerns were expressed at the national consultation by

<sup>49</sup> "Adtalem Global Education Announces Barbados as New Location for Ross University School of Medicine, 3 August 2018,

<sup>50</sup> "Dominica PM hints at legal action against Ross University", 4 November 2018, Barbados Today. <https://barbadostoday/bb/2018/11/04/dominica-pm-hints-at-legal-action-against-ross-university/>

<sup>51</sup> Dominica : 2018 Article IV Consultation-Press Release and Staff Report, IMF Country Report No. 18/265 <https://www.imf.org/en/Publications/CR/Issues/2018/09/05/Dominica-2018-Article-IV-Consultation-Press-Release-and-Staff-Report-46204>

private sector operators. A study conducted by the Dominica Hotel and Tourism Association of 20 properties – representing 276 exportable rooms or 30 percent of the pre-Maria room stock, revealed that eight months after the passage of Maria, some 75 percent of claims had not been paid out<sup>52</sup>.

3.59. The IMF reports that many of the outstanding claims relate to the largest insurer, the sole domestic insurance company that held a large proportion of outstanding claims. This insurer had a capital shortfall equivalent to 2 percent of GDP and was seeking financial support to meet outstanding pay-outs. In the IMF's view, progress with claim payments since the hurricane had otherwise been significant, especially by foreign companies, with total payments made equivalent to 20 percent of GDP.<sup>53</sup>

3.60. Dominica has in place a traditional indemnity-type insurance cover and holds a sovereign catastrophe risk insurance cover under the Caribbean Catastrophe Risk Insurance Facility (CCRIF). Although Dominica's 1978 Constitution Chapter 5 (80) (Dominica Government 1978) and Finance (Administration) Act, 1994, Act 4 of 1994 (Part 111) (7) (Dominica Government 1994), makes provision for a Contingencies Fund, the Dominican Government has not included contingencies in its annual budget provisions. (Katafono, 2018) One recommendation made by the IMF is that the government should use its representation powers to advance harmonized regional regulation for the insurance sector, which would reduce insurance costs with the increase in scale, risk diversification, and competition.<sup>54</sup> A further recommendation made by the IMF is that the Contingency Fund should be activated in future budgeting.

3.61. Dominica's market is open to "reinsurance services" according to the country's GATS schedule. It is possible to provide reinsurance services to Dominicans on a cross-border basis without a commercial presence. Dominicans can also subscribe to foreign based reinsurance companies without restrictions. Dominica's GATS schedule on insurance services notes several limitations for foreign reinsurance companies wishing to establish a commercial presence in Dominica (mode 3). Market access is subject to the "Insurance Act". In addition, foreign reinsurance companies must also pay a withholding tax. Foreign nationals wishing to work in the reinsurance sector in Dominica are subject to work permit and immigration regulations. The services schedule does not elaborate on these regulations, processes and requirements.

3.62. Consultations with the Caribbean Development Bank (CDB) indicated that it is supporting member countries to create a regional insurance market. The CDB highlighted that policy and legislation changes are needed so that insurance companies can diversify risks over different countries. Divergent tax and other regulations need to be addressed and CBD is collaborating with the Eastern Caribbean Central Bank toward this goal.

3.63. **Box 7** below outlines the operation of the Caribbean Catastrophe Risk Insurance Facility CCRIF SPC made a payout of US\$19,294,800 to Dominica under its tropical cyclone policy following the passage of Hurricane Maria - a pay-out made within 14 days of the passage of the hurricane on 19 September 2017<sup>55</sup>. CCRIF is designed to provide quick liquidity to governments of the Caribbean and Central America following catastrophic impacts from tropical cyclones, earthquakes and excess rainfall.

3.64. Participants at the national consultation in Dominica welcomed the speed of the CCRIF pay-out, but suggested that the financial coverage of the Facility needed expanding in future so as to cover a greater proportion of damage incurred. This was a theme also touched on by Prime Minister Roosevelt Skerriat at the UN General Assembly in which he stated that "Though helpful, the amounts

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<sup>52</sup> "Insurance Payment Delays Hampering Rehabilitation Efforts of Tourism Industry", 23 May, 2018, The Dominica Sun. Available at: <http://sundominica.com/articles/insurance-payment-delays-hampering-rehabilitation--4787/>

<sup>53</sup> Dominica : 2018 Article IV Consultation-Press Release and Staff Report, IMF Country Report No. 18/265 <https://www.imf.org/en/Publications/CR/Issues/2018/09/05/Dominica-2018-Article-IV-Consultation-Press-Release-and-Staff-Report-46204>

<sup>54</sup> Dominica : 2018 Article IV Consultation-Press Release and Staff Report, IMF Country Report No. 18/265 <https://www.imf.org/en/Publications/CR/Issues/2018/09/05/Dominica-2018-Article-IV-Consultation-Press-Release-and-Staff-Report-46204>

<sup>55</sup> "CCRIF to Make Payout to Dominica of US\$19 million Following the Passage of Hurricane Maria", 22 September 2017, Caribbean Catastrophe Risk Insurance Facility website. Available at: <https://www.ccrif.org/news/ccrif-make-payout-dominica-us19-million-following-passage-hurricane-maria>

are usually grossly inadequate to rebuild infrastructure and to maintain the gains and progress made in economic and social development after the likes of Hurricanes Maria, and Irma or even in the case of a Tropical Storm like Erika. Substantially more funds must therefore be made available to vulnerable countries for loss and damage such that they may mitigate the risks associated with future incidents. Prime Minister Skeritt suggesting recapitalizing CCRIF for greater coverage by using already committed funds from the Green Climate Fund.<sup>56</sup>

### Box 7: Caribbean Catastrophe Risk Insurance Facility

CCRIF SPC is a segregated portfolio company, owned, operated and registered in the Caribbean. It limits the financial impact of catastrophic hurricanes, earthquakes and excess rainfall events to Caribbean and – since 2015 – Central American governments by quickly providing short-term liquidity when a parametric insurance policy is triggered. It is the world's first regional fund utilising parametric insurance, giving member governments the unique opportunity to purchase earthquake, hurricane and excess rainfall catastrophe coverage with lowest-possible pricing. CCRIF was developed under the technical leadership of the World Bank and with a grant from the Government of Japan. It was capitalized through contributions to a Multi-Donor Trust Fund (MDTF) by the Government of Canada, the European Union, the World Bank, the governments of the UK and France, the Caribbean Development Bank and the governments of Ireland and Bermuda, as well as through membership fees paid by participating governments. In 2014, an MDTF was established by the World Bank to support the development of CCRIF SPC's new products for current and potential members, and facilitate the entry for Central American countries and additional Caribbean countries.

CCRIF provided additional financial assistance under its Technical Assistance Programme for specific rebuilding projects on the island to help recovery efforts. Dominica has received more than USD 23 million through CCRIF in pay-outs since 2007. First in 2007 earthquake for USD 500,000, followed by Excess Rainfall (Tropical Storm Erika) in 2015 for USD 2.4 million, and most recently a Tropical Cyclone pay-out (Hurricane Maria) for USD 19.2 million in conjunction with an excess rainfall (Hurricane Maria) for USD 1.05 million.

According to the World Bank, there are a number of risk financing options that Dominica could explore to help manage natural disasters:

- **Sovereign disaster risk financing:** Development of financial strategies to increase the financial response capacity of governments in the aftermath of natural disasters, while protecting long-term fiscal balances
- **Property catastrophe risk insurance:** Development of competitive catastrophe insurance markets to increase property catastrophe insurance penetration among homeowners and small/medium enterprises
- **Agricultural insurance:** Development of agricultural insurance programs for farmers and agricultural financing institutions to increase their financial resilience to adverse natural hazards). Although insurance schemes are seen as an alternative strategy for risk reduction, for many who are unable to afford insurance, the strategy of choice is livelihood diversification (UNDP 2015).
- **Disaster micro-insurance:** Facilitate access to disaster insurance products to protect the livelihood of the poor against extreme weather events and promote disaster risk reduction, in conjunction with social programs such as conditional cash transfer programs (World Bank).

Source: CCRIF SPC, UNDP Assessment Capacities Project, World Bank<sup>57</sup>

<sup>56</sup> Available at: [https://gadebate.un.org/sites/default/files/gastatements/72/dm\\_en.pdf](https://gadebate.un.org/sites/default/files/gastatements/72/dm_en.pdf)

<sup>57</sup> "Dominica Lessons Learned from Tropical Storm Erika", October 2017, Assessment Capacities Project. [https://www.acaps.org/sites/acaps/files/products/files/20171024\\_acaps\\_dominica\\_lessons\\_learned\\_tropical\\_storm\\_erika.pdf](https://www.acaps.org/sites/acaps/files/products/files/20171024_acaps_dominica_lessons_learned_tropical_storm_erika.pdf)

3.65. The 2014 WTO Trade Policy Review of the OECS highlighted that Dominica's manufactured sector revolves mainly around agro-processing, some assembly of plastic and metal goods, and textile production. The agro-industry includes the production of beverages using a variety of raw materials, such as coconut, citrus, and other fruits. The main markets for Dominica's manufacturing exports are other OECS countries, Martinique and Guadeloupe.<sup>58</sup>

3.66. The direct effect of Hurricane Maria to the local agricultural economy can be categorized as the following, but not limited to: a) physical/environmental impact (loss of bio-diversity, loss of a critical ecosystem services, dislocation of lands, transport and sedimentation of soil material, loss of crop canopy, feeder and farm access roads, damage to government infrastructures, etc.); b) economic impact (loss of foreign exchange, loss of market share, loss of income, increase in food import, increase production cost, impact on revenue, etc.); c) socio-economic impact (loss of farm employment and related agricultural activities, exit from sector, migration, urbanization and changing agrarian structure, etc.). (Commonwealth of Dominica, 2017)<sup>59</sup>

3.67. A case in point as to how manufacturing in Dominica is tied back into the agriculture sector is the coconut sector. The coconut value chain contains five distinct product markets – outlined in **Box 8** below. With domestic supply of raw material severely curtailed, all the segments of the coconut value chain in Dominica have been affected. Several of the private sector participants present at the national consultations had been obliged to shutter business operations in the absence of raw material supply. The Post-Disaster Needs Assessment conducted by the Government of Dominica estimated that 65 percent of coconut trees were damaged by Hurricane Maria, together with 80 percent of cocoa and 80 percent of citrus trees.

3.68. During the national consultation, stakeholders in the agriculture sector expressed concern that recovery of tree crops would require a minimum of five to seven years before production began to approach pre-hurricane levels. In May 2018, the government announced plans to import 20,000 coconuts plants and 8,000 citrus plants, along with coffee and avocado plants.<sup>60</sup> However, phytosanitary risks associated with the import of live plants led to a rethink at the behest of Dominica's phytosanitary authorities. Nor have imports of fresh coconuts, that could have been used by processors have been authorised.

3.69. Various plant diseases circulate in coconut trade. One example is Candidatus Phytoplasma Palmae, a phytoplasma disease commonly known as lethal yellowing of coconut, which spreads through the movement of coconut planting material. Once introduced, lethal yellowing disease attacks coconut trees and leads to premature fruit fall. The disease has been reported in Antigua and Barbuda.<sup>61</sup> Little information is available on phytosanitary risks in coconut trade and limited investment has been made in mapping of pests. As a result, trade is hampered by risk assessment processes and a lack of regionally harmonized protocols.

3.70. The Caribbean Coconut Industry Development Project, implemented by the International Trade Centre and the Caribbean Agricultural Research Development Institute with funding from the European Union is an on-going initiative to address these issues. The project works with 11 Caribbean countries, including Dominica, and is guided by a detailed mapping of regional and national coconut industry structures conducted in July 2016 (see box 8 below). It has four dimensions which are highly relevant for the revitalization of the coconut sector in Dominica: productivity enhancement, reducing the impact of weather risks and natural disasters, control of the presence of lethal yellowing disease and other pests, and addressing shortages in production of seedling and coconut planting materials.

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<sup>58</sup> Trade Policy Review Report by OECS- WTO Members, 18 September 2014, WT/TPR/G/299/Rev.1, World Trade Organization

<sup>59</sup> "Post-Disaster Needs Assessment Hurricane Maria September 18, 2017 - A Report by the Government of the Commonwealth of Dominica" 15 November 2017, Available at: <https://www.gfdr.org/sites/default/files/publication/dominica-pdna-maria.pdf>

<sup>60</sup> "Austria says farmers are producing in the wake of Hurricane Maria", 10 May 2018, Dominica News Online. Available at: <http://dominicanewsonline.com/news/homepage/news/agriculture/austrie-says-farmers-are-producing-in-the-wake-of-hurricane-maria/>

<sup>61</sup> "First report of lethal yellowing disease associated with subgroup 16SrIV-A phytoplasmas in Antigua", Myrie WA, Harrison NA, Douglas L, Helmick E, Gore-Francis J, Oropeza C, McLaughlin WA, 2014. New Disease Reports 29, 12. Available at: <http://dx.doi.org/10.5197/j.2044-0588.2014.029.012>

### Box 8: Expanding Global Coconut Value Chain

The coconut global value chain is at a critical juncture, characterized by a rapidly growing demand in global markets and a stagnant supply base in danger of collapse in origin countries. Market demand is rising for traditional and non-traditional coconut products across five different coconut value chain strands:

- In the coconuts-chemical chain, the traditional export product, coconut oil, is used as a feedstock in manufacturing oleochemicals. Consumer preference for 'naturalness' in personal care and cosmetic markets has expanded the demand for oleochemicals, which account for nearly 45-50% of coconut oil consumption worldwide
- In the coconuts-'sports drink' chain, coconut water grew to an estimated US\$1.36 billion market in 2014 and was projected to reach approximately \$4billion in 2019. Leading global brand manufacturers such as the Coca Cola Co., Pepsi Co. and Red Bull GmbH, as well as niche players such as Vita Coco have driven product and market development through their investment in coconut water products and brands.
- Growth in the 'coconut-food' chain is also driven by non-traditional products. 'Alternative dairy food and beverage' markets in the U.S. grew 25-30% per year during 2009-2014, with the coconut milk market reaching US\$193 million in 2014 and expected to grow at 18% per year to 2021. Exports of virgin coconut oil have grown manifold, reaching 7,300 tons in 2012.
- Coconut shell supplied approximately 19% of the feedstock in production of activated carbon, with an estimated global market value of US\$2.35 billion in 2014, and a projected market of US\$3.92 billion by 2019
- Coir, extracted from the coconut husk, has also become a widely used input in geotextile, horticulture, and recently as a natural fiber in composite applications. Husks are, however, still largely wasted and from the 5-6 million tons global supply, only 10-15% of the husk volume enters international commercial markets.

Since 2008, regional trade of coconuts and coconut products has grown by approximately 230%, reaching US\$8.6 million in 2014. An emerging coconut regional value chain -characterized by fragmented production networks involving vertically-coordinated trade between Caribbean countries --has driven regional and global trade expansion.

Limited supply of fresh coconuts is the critical constraining barrier to industry growth. The supply bottleneck is rooted in persistent low investment in now aging and unproductive coconut plantations following the decline of 'copra oil' oil industry in the 1980s. Regardless of the size of production, the structure of coconut farming is currently beset with poor organization, typically a smallholder activity concentrated in areas deprived of financial and technological resources. Only a more concerted intervention by the public-private stakeholders can feasibly divert the industry's current course, set head-on towards a supply chain crash.

Source: International Trade Centre<sup>62</sup>

3.71. Also, badly affected by Hurricane Maria was the forestry sector. Strong winds and the salty sea blast resulted in an almost complete defoliation of all trees. Only in protected valleys or on the leeward side of slopes did a small number of trees retain foliage. Damage was still visible when the research team visited in August 2018, along with visual evidence of the initial recovery that the Post-Disaster Needs Assessment predicted. The PDNA estimated that 10 to 20 percent of trees had been completely flattened, while another 50 percent or more were still standing and likely to recover

<sup>62</sup> "Connecting to the World Market through Regional Value Chains: Partnership Opportunities in Coconut Value Chain for the Small Caribbean Economies" July 2016, Ajmal Abdulsamad, Duke University, Centre on Globalization, Governance & Competitiveness, International Trade Centre Available at: [https://gvcc.duke.edu/wp-content/uploads/ITC\\_Report\\_Caribbean\\_Coconut\\_Global\\_Value\\_Chain\\_2016.pdf](https://gvcc.duke.edu/wp-content/uploads/ITC_Report_Caribbean_Coconut_Global_Value_Chain_2016.pdf)

within five years. The main use of the forest is for ecotourism. Forest cover is integral to the tourist branding of Dominica as the "Nature Island".

3.72. Dominica does not have any large-scale forest operations. It is estimated that approximately 20 commercial trees species and dimensions per acre were blown over or destroyed by the Hurricane. The average royalty value of a tree is estimated to be EC\$140. Fallen trees represent a valuable resource forgone if they cannot be exploited. Two solutions proposed in the PDNA included charcoaling and conversion of fallen trees into lumber. Both solutions encounter trade issues however. For charcoal, the PDNA noted that a key problem was to find an export market in the Caribbean or further afield. For lumber operations, compliance with schemes to prevent illegal logging and certification for freedom from phytosanitary risks represent further obstacles. A more general point made at the national consultation was that such operations needed prior enabling frameworks, including through government procurement and authorization of foreign service providers. In the absence of domestic firms able to take on this task, temporary admission of foreign suppliers was one option discussed during the national consultation.

3.73. The fisheries sector in Dominica is "extremely vulnerable to hurricanes and storms". "There are no naturally secure harbours and fisheries infrastructure is squeezed in between the coasts and the sea. Consequently, capital losses are high in every major storm".<sup>63</sup> Hurricane Maria was no exception. Approximately 128 vessels (or 40% of the total fishing fleet) were lost, fisheries cooperatives suffered damage to ice-making machines, fuel pumps and supplies for market vendors, and fishers lost a large percentage of their fishing gear. The Fisheries Division in Roseau lost its roof, furniture and office equipment. The destruction affected the food security and livelihoods of fisher folk and those in associated sectors (e.g., market vendors, gutters, mechanics, boat builders). The PDNA highlighted how restoring fishing operations would have positive spill-over effects on the coastal communities by means of supporting mechanics, boat builders, small and medium sized business as well as all household dependents.

3.74. Dominica's fishing industry is artisanal and small-scale, and consists of capture fishery and aquaculture that contribute four per cent to GDP. Most of the fish caught are used for subsistence or sold domestically. The Dominica fishery division interviewed during the national consultation indicated market access issues in entering Guadeloupe and Martinique for fish caught by Dominican boats due to sanitary measures. Fish could only be landed after transfer to vessels from these jurisdictions, reducing the economic return to Dominican fishers. Overall the fisheries sector employs approximately 2,200 people. Amongst the recovery needs identified in the PDNA were: refrigeration repairs to reinstate ice production and cold storage facility; rehabilitation of fisheries cooperatives; infrastructural work on fishing cooperatives and reinstating functions of fuel stations.

3.75. The tourism sector has driven economic growth in Dominica since 2009. Growing at 5.5% per year, tourism's share of GDP jumped from 15 percent of total GDP in 2009 to 23.9 per cent in 2016. The sector comprises distinct components, overnight stay and cruises. Cruises are more important in visitor numbers (276,000 of the 366,000 total visitors in 2016), while overnight stay generates more income for the country (with a spend of US\$406 per day for an average nine days as compared to EC\$89 for a one-day cruise stop-over).

3.76. Damage inflicted by Hurricane Maria and the difficulties faced by smaller operators, notably eco-lodges, in accessing financing and insurance pay-outs, raised concerns at the national consultation about a change in the structure of the sector. The heaviest damages were to hotel room stock of small operators. Out of a total of 909 rooms, 39 percent (358) were severely damaged, while a further 34 percent (308) were damaged, but expected to return progressively to the market within 12 months. With two new high-end resorts expected to come on stream by 2020, concerns were raised by some smaller operators about future opportunities and the economic benefits of tourism for Dominicans.<sup>64</sup> The sector is important from the perspective of women's economic

<sup>63</sup> Charlotte Benson, Edward Clay, Franklyn V. Michael, Robertson, Alastair W. Robertson. 2001. *Dominica: natural disasters and economic development in a small island state (English)*. Disaster risk management working paper series; no. 2. Washington, D.C.: The World Bank. <http://documents.worldbank.org/curated/en/875391468770118094/Dominica-natural-disasters-and-economic-development-in-a-small-island-state>

<sup>64</sup>In November 2014, the government signed an agreement with Range Developments, a development company, for the construction of a luxury hotel resort as an approved project under its Citizenship By Investment programme. Range Developments subsequently signed an agreement with Kempinski Hotels for

empowerment. Women make up 60-70% of the labour force in the hotel sector and in some OECS countries tourism has twice as many women employees than other sectors.

**Box 9: Fiscal incentives available for tourism investment**

Under the Hotels Aid Act (1991) and the Fiscal Incentives Act, the Minister responsible for tourism may grant licences to investors constructing hotels (of not less than five bedrooms) to import duty-free building materials and articles of hotel equipment. Customs duties already paid may also be drawn back. Imports for capital investment, up until the commencement of the hotel's operations may also be exempt from the VAT. Income tax exemptions are available to property developers for the construction and extension of hotels, for a maximum of 20 years. At present there is a consultation in progress geared at reviewing the Hotel Aids Act.

Source: WTO<sup>65</sup>

3.77. Cruise tourism returned quickly to Dominica after investment in rehabilitation of the cruise berth in Roseau. By December 2017, cruise ship visits had returned to 20% of pre-hurricane levels. A total of 189 cruise calls are projected for the 2018-19 tourist season which equates to 304,000 cruise passengers, with nine new cruise ship visits. If realized, this would represent an increase of 28,000 or 10.1% over 2016 numbers.<sup>66</sup>

3.78. Cruise tourism appears a resilient source of foreign exchange for Dominica. In contrast, rehabilitating accommodation and overnight stay tourism will require more sustained effort before tourist arrivals return to pre-hurricane levels. Integrating "build back better" principles will be important, not least since there were many examples of properties on the island that have survived the storm with their non-concrete roofs intact - evidence that better construction techniques can go far in mitigating disaster risks. A further consideration is to ensure that operators have insurance. One participant at the national consultation suggested that insurance premiums had become unaffordable post-hurricane.

3.79. Another constraint to the development of overnight stay tourism is airport capacity. Dominica is currently served by 2 airports – Douglas-Charles Airport and Canefield Airport – which are capable of receiving only regional flights from Antigua, Barbados, St Maarten, Saint Lucia, Puerto Rico, Guadeloupe and Martinique. Development of a new international airport would significantly improve air access to the island and allow it to receive direct international flights from beyond the Caribbean region. In April 2017, the government plans to build the new airport at a cost of approximately US\$220 million. However, post-hurricane recovery needs across the economy have slowed progress on this project.<sup>67</sup>

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the operation of the Cabrits Resort Kempinski Dominica, a 101 room hotel. "Kempinski To Launch Hotel In The Commonwealth Of Dominica", 13 November 2014, Hospitality.Net Available at: <https://www.hospitalitynet.org/news/4067801.html>

<sup>65</sup> Trade Policy Review Report by OECS- WTO Members, 18 September 2014, WT/TPR/G/299/Rev.1, World Trade Organization

<sup>66</sup> "2018-2019 cruise season opens on Tuesday", 28 October 2018, Dominica news online. Available at: <http://dominicanewsonline.com/news/homepage/news/2018-2019-cruise-season-opens-on-monday/>

<sup>67</sup> "PM Skerrit blames Maria for further progress on international airport", 8 May 2018, Donminica News Online. Available at: <http://dominicanewsonline.com/news/homepage/news/economy-development/pm-skerrit-blames-maria-for-lack-of-progress-on-international-airport/>

### 3.7 Trade issues in disaster resilience

3.80. With climate change threatening to heighten the impacts of hydro-meteorological hazards, future decades may result in an increased burden of weather-related disasters that can threaten the sustainability of Dominica's development processes. (CIF 2015) <sup>68</sup> In a more immediate time-frame, the combined impact of the Tropical Storm Erika and Hurricane Maria has reversed progress in debt reduction and caused a collapse in economic output. With significant risks to Dominica's debt sustainability outlook, the IMF assesses Dominica as at "high risk of debt distress."<sup>69</sup>

3.81. Breaking the cycle of periodic disasters and debt distress is a development priority. The government has announced plans to make Dominica the first "climate resilient nation" in the world. This includes through strengthening the resilience of Dominica's physical infrastructure and natural environment, but also through building greater fiscal resilience, flexibility and ability to cope with climate events and shocks.

3.82. One element of the resilience strategy is the establishment of the Climate Resilience Execution Agency of Dominica (CREAD). The mission of the agency is to coordinate all reconstruction work to avoid duplication, maximize economies of scale, spot and fill critical gaps, avoid bureaucratic infighting and ensure all reconstruction activities are focused on a single Climate Resilient Recovery Plan developed by Dominica and its partners. <sup>70</sup> The agency has a four-year mandate, and as the need for recovery action normalises to 'development' it will establish and implement a strategy to transfer its capacities, skills, knowledge and information. <sup>71</sup> Box 10 outlines the proposed approach to reconstruction procurement. An accompanying National Resilient Development Strategy for the period 2018-2030 is currently under development.<sup>72</sup>

#### **Box 10: CREAD Procurement: accelerated and to ensure the local private sector can participate**

Managing procurement so that it is swift and where possible the local private sector can participate in reconstruction, will comprise a large element of CREAD's work and purpose. Many of the reconstruction contracts needed will be too large for the Dominican private sector to compete realistically. However, we see it as crucial to the recovery that the local private sector is fully engaged. CREAD will ensure tenders are structured so that the work can be carried out by international construction managers with local subcontractors. CREAD will need to have the capacity to procure using both the government's and donors' procedures. It will seek to fast-track and streamline procedures where necessary, to solve problems or find "work-arounds" quickly and will have the power and expertise to negotiate new procedures with donors if existing ones are proving counter-productive.

Source: Government of Dominica<sup>73</sup>

<sup>68</sup> "Climate Resilience in Dominica", Final Report on the Progress of Dominica's Strategic Program for Climate Resilience and Annual Monitoring" June 2015

[https://www.climateinvestmentfunds.org/sites/cif\\_enc/files/meeting-documents/dominica-2015\\_ppcr\\_results\\_report.pdf](https://www.climateinvestmentfunds.org/sites/cif_enc/files/meeting-documents/dominica-2015_ppcr_results_report.pdf)

<sup>69</sup> Dominica : 2018 Article IV Consultation-Press Release and Staff Report, IMF Country Report No. 18/265 <https://www.imf.org/en/Publications/CR/Issues/2018/09/05/Dominica-2018-Article-IV-Consultation-Press-Release-and-Staff-Report-46204>

<sup>70</sup> "Gov't launches CREAD on Friday afternoon", Dominica News Online, 9 March 2018 Available at: <http://dominicanewsonline.com/news/homepage/news/economy-development/govt-launches-cread-on-friday-afternoon/>

<sup>71</sup> Rebuilding Dominica as a Climate Resilient Nation: the Climate Resilient Execution Agency for Dominica (CREAD), Proposal from the Government of the Commonwealth of Dominica." November 2017, Government of Dominica. Available at: <https://resilientcaribbean.caricom.org/documents/rebuilding-dominica-as-a-climate-resilient-nation-the-climate-resilient-execution-agency-for-dominica-cread-proposal-from-the-government-of-the-commonwealth-of-dominica/>

<sup>72</sup> "National Resilient Development Strategy being developed", 26 June 2018, Dominica Vibes News Available at: <https://www.dominicavibes.dm/news-245234/>

<sup>73</sup> " Rebuilding Dominica as a Climate Resilient Nation: the Climate Resilient Execution Agency for Dominica (CREAD), Proposal from the Government of the Commonwealth of Dominica." November 2017, Government of Dominica. Available at: <https://resilientcaribbean.caricom.org/documents/rebuilding-dominica-as-a-climate-resilient-nation-the-climate-resilient-execution-agency-for-dominica-cread-proposal-from-the-government-of-the-commonwealth-of-dominica/>

3.83. The 2014 WTO Trade Policy Review of the OECS noted that Antigua and Barbuda, Dominica, and St Kitts and Nevis passed new legislation on government procurement; the legislation has not yet entered into force in Antigua and Barbuda. OECS-WTO Members generally provide for both public and selective tendering. Public tendering is generally used for larger projects and when required by a donor's rules. Local or regional suppliers are not granted any preferences, except in Dominica.<sup>74</sup> None of the OECS-WTO Members are parties to the WTO Agreement on Government Procurement.

3.84. On the fiscal resilience side, this includes: fiscal measures to better integrate sustainable development and climate adaptation strategies into development and budget planning processes; incorporating measures and instruments to better manage and cope with contingent and implicit liabilities arising from natural disaster events; fiscal and tax reforms that increase domestic revenues, but also achieve green growth objectives; and reforms to increase the efficiency and effectiveness of social protection programs. The authorities have requested World Bank support on potential tax reforms to increase domestic revenue mobilization to increase budget and fiscal resiliency. In response to this request, Climate Action Peer Exchange (CAPE) is funding the preparation of a report on how to reform existing fiscal policies on fuel, vehicles and durables and the existing environmental surcharge system; electricity and waste pricing, and fiscal policy for encouraging reforestation.<sup>75</sup>

3.85. Dominica's legal framework for disaster risk management is captured in the Emergency Powers (Disaster) Act: Chapter 15:03 – Act 20 of 1987. This act gives the Head of State the authority to declare a state of emergency and take necessary action to respond to disasters. Since 2014, Dominica has been in the process of finalising a draft Comprehensive Disaster Management Bill with the assistance of the Caribbean Disaster Emergency Management Agency. (Katafono, 2018).<sup>76</sup>

3.86. Dominica developed a National Disaster Plan in 1986, which was subsequently revised in 2001 and again in 2009. The plan details arrangements to manage the effects of disasters, assigns responsibilities and outlines coordination of emergency activities during major disasters, and encourages a process of learning to cope adequately with the recovery. Dominica's National Emergency Planning Organisation (NEPO) has the central responsibility for the planning and organisation of counter-disaster measures. NEPO oversees the Office of Disaster Management (ODM), its implementation arm, district- and community-level committees, and various taskforces. (Katafono, 2018)<sup>77</sup>

3.87. For both, budget allocation to these offices, although marginal against total government expenditure (under 0.2%), has increased significantly, demonstrating the increased priority of disaster risk within central government. ODM's allocation doubled from US\$84,407 in 2011/12 to US\$197,899 in 2014/15 and then to US\$203,355 in 2015/16. Dominica's NEPO and ODM work closely with the CDEMA in responding to disasters. The CDEMA is a regional intergovernmental agency for disaster management in the Caribbean Community, with responsibility for the mobilisation and coordination of emergency response and relief efforts to its participating states. (Katafono, 2018)<sup>78</sup>

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<sup>74</sup> "Trade Policy Review, Report by the Secretariat: OECS-WTO Members", 22 September 2014, WT/TPR/S/299/Rev.1

<sup>75</sup> Dominica: Tax Reform to Boost Climate Resilience", 19 October 2018, David Cal MacWilliam, Climate Action Peer Exchange, <https://www.cape4financeministry.org/blog/dominica-tax-reform-boost-climate-resilience>

<sup>76</sup> "Comparative Analysis of Disaster Risk Reduction and Management in Dominica and Vanuatu: Lessons for Small States", *Small States Digest*, No. 2018/01, Commonwealth Secretariat, London, <https://doi.org/10.14217/6f77cc82-en>.

<sup>77</sup> "Comparative Analysis of Disaster Risk Reduction and Management in Dominica and Vanuatu: Lessons for Small States", *Small States Digest*, No. 2018/01, Commonwealth Secretariat, London, <https://doi.org/10.14217/6f77cc82-en>.

<sup>78</sup> "Comparative Analysis of Disaster Risk Reduction and Management in Dominica and Vanuatu: Lessons for Small States", *Small States Digest*, No. 2018/01, Commonwealth Secretariat, London, <https://doi.org/10.14217/6f77cc82-en>.

### Box 11: Options for investing in disaster risk reduction

Risk cannot always be averted, however, and in those cases, countries should invest in ways to lessen the impact of disasters, including the following:

- **Self-insurance by building fiscal cushions.** Several Caribbean states are establishing frameworks to self-insure systematically.
- **Insurance and hedging tools allow** the public and private sectors to pool risk for moderate disasters, for which the cost of large buffers through self-insurance may become too high. These tools call for deeper and more developed financial markets that facilitate risk pooling, expand the insurance market, and provide access to financing for infrastructure projects that build resilience.
- **Innovative risk-sharing tools** provide governments with additional relief in managing disaster risks. Parametric insurance bases pay-outs on the nature of a disaster and bypasses on-site loss assessment, offering quick relief. An example is the World Bank's Caribbean Catastrophe Risk Insurance Facility—a regional fund that allows governments to limit the financial impact of natural disasters by providing quick liquidity when a major disaster strikes. Catastrophe bonds (cat bonds) are another risk-sharing tool that transfers the risk to markets in exchange for generous regular payments (coupons) and allows the issuer to forgo repayment of the principal if there is a major disaster.
- **Contingent lines of credit** with bilateral, multilateral, and commercial creditors put financing in place before disaster hits, reducing funding uncertainty. The World Bank Catastrophe Draw-Down Option—a credit line that can be accessed after declaration of a state of emergency because of a natural disaster—offers middle-income countries immediate access to funds when liquidity is most scarce.

Source: IMF<sup>79</sup>

3.88. Experience suggests that, despite the clear benefits of preparation, countries perennially underinvest in risk reduction and prevention. When risk cannot be averted or mitigated at reasonable cost, relying on borrowing, external aid, or disaster-financing facilities from international financial institutions may be the only recourse. IMF research suggests several factors may be at play:

- Obtaining funds to prepare for a disaster is limited, given complex eligibility and disbursement criteria, information gaps, and the absence of coherent plans for access that may be hard to design in a low-capacity environment.
- Insurance coverage remains low, given the high cost, shallow financial markets, limited competition, or when a particular disaster is not covered in the insurance contract.
- Even though many Caribbean states subscribe to the Caribbean Catastrophe Risk Insurance Facility, pay-outs have been small compared with the costs, because countries simply cannot afford to pay for higher insurance coverage. Pooling risk to include other small states across the globe could reduce premiums, reflecting a lower risk that all countries will be hit by the same shock.
- The cat bond market for very large disasters is small and shallow, making cat bonds too expensive for a single country.<sup>80</sup>

3.89. Stakeholders from the private sector recognized the importance of preparing for disasters during their national consultation. For them, resilience equated to a combination of advance preparation and quick recovery. They argued that building resilience in the trade sector was critical

<sup>79</sup> "Bracing for the storm: For the Caribbean, building resilience is a matter of survival", İnci Ötker and Krishna Srinivasan, Finance & Development, March 2018, Vol. 55, No. 1, International Monetary Fund

<sup>80</sup> "Bracing for the storm: For the Caribbean, building resilience is a matter of survival", İnci Ötker and Krishna Srinivasan, Finance & Development, March 2018, Vol. 55, No. 1, International Monetary Fund

in view of Dominica's import dependence. Emphasis was placed on improving port operational efficiency and trade facilitation as key investments in promoting resilience. The issue was raised by the survey team in discussion with the Caribbean Customs Law Enforcement Council.

3.90. A general point made by the private sector was that their issues had received insufficient attention from government, humanitarian organizations and development partners. Enhancing Dominica's growth prospects requires higher private sector participation and improving the business environment. To this end, the IMF has stressed the need to improve the business environment, including efforts to reduce the costs of dealing with the government. (IMF 2018)<sup>81</sup>

3.91. Stakeholders from the private sector also recognized the importance of Business Continuity Planning. It was suggested that some critical stakeholders dealing with foods and other essentials, such as supermarkets and grocery stores, would have gained much from integrating business continuity planning into their operations prior to the passage of Hurricane Maria. This was also noted in relation to the operation of the ICT sector, which many private sector participants recognized as a critical lifeline. Telecoms firms present indicated that they had several redundancies built into their systems and satellite phones as a backup communication tool. St. Lucia had been used as a hub for emergency operation.

3.92. The Caribbean Tourism Organization highlighted also highlighted the need for Business Continuity Planning (BCP) in the tourism sector during a meeting with the survey team. Smaller family-owned hotels tend not to have a BCP or insurance, and therefore tend to be impacted more by a disaster. In contrast, because larger operations tended to have policies on BCP, often determined at a group level across multiple jurisdictions.

3.93. During the national consultation meetings, the Director of Trade, Mr Matthan Walter, offered some thoughts on how Dominica might strengthen its trade regime in advance of future disasters. Suggestions he made in this regard included *inter alia*:

- Liberalization of Dominica's GATS Services schedule through additional commitments, including in the medical, insurance and ICT sectors.
- Streamlining of customs procedures as part of implementation of the WTO Trade Facilitation Agreement; and
- Applying international standards to develop resilient infrastructure with support from development partners.

3.94. One way in which the government is seeking to break the vicious circle of disasters and debt is through investment in resilient infrastructure, despite its higher upfront cost. Given the high frequency of natural disasters, the additional cost is justified, but again fiscal constraints are a limiting factor.

3.95. IMF analysis, based on a model calibrated to Dominica, indicates that resilient infrastructure can have positive effects on output, private wages, and employment. Assuming a natural disaster with damage in line with historical averages occurs every five years, the increase in public investment expenditures due to the higher cost of resilient structures would be recovered in the form of higher tax revenues from improved economic performance. The decline in the expected loss from natural disasters increases private investment wages, and output, while reducing out-migration of labour. The IMF simulations indicate that output gains from resilient investment more-than-offset its additional cost by a factor of 3, including the reduced output loss with resilient capital and the improved long-term effect on output. (IMF 2018)<sup>82</sup>

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<sup>81</sup> Dominica : 2018 Article IV Consultation-Press Release and Staff Report, IMF Country Report No. 18/265 <https://www.imf.org/en/Publications/CR/Issues/2018/09/05/Dominica-2018-Article-IV-Consultation-Press-Release-and-Staff-Report-46204>

<sup>82</sup> Dominica : 2018 Article IV Consultation-Press Release and Staff Report, IMF Country Report No. 18/265 <https://www.imf.org/en/Publications/CR/Issues/2018/09/05/Dominica-2018-Article-IV-Consultation-Press-Release-and-Staff-Report-46204>

3.96. An investment in resilient infrastructure that promises a high development and trade return is the development of geo-thermal energy. Reliance on imported diesel to produce electricity means Dominica faces electricity prices that are among the highest in the world. (World Bank 2017)<sup>83</sup>

3.97. Operated by the Dominica Electricity Services Limited, a vertically integrated private utility, Dominica's power system is small, with a total installed capacity of 26.7 MW and 36,000 customers, of which 31,000 are residential. Except for 6.64 MW of hydropower, most of the installed generation capacity is fuelled by imported diesel. Dominica's retail electricity price, averaging around US\$0.40 per kilowatt hour (kWh), is among the highest in the world. (World Bank 2017)<sup>84</sup>

3.98. High and volatile electricity costs also severely hit domestic consumers, and especially the poor. The rising burden on households' spending affects living standards and constrains efforts towards poverty reduction. In addition, increased costs of diesel imports create a severe negative impact on the country's balance of trade. (World Bank 2017)<sup>85</sup>

3.99. Developing geothermal resources can critically help stabilize long-term electricity costs and be a 'game changer' for Dominica. Lowering and stabilizing electricity costs is the single most impending priority for Dominica's power sector and can be met by developing the country's significant geothermal potential. As an indigenous resource, it also offers a natural hedge against the price volatility of imported fuels. (World Bank 2017)<sup>86</sup>

3.100. Research indicates that switching baseload generation from diesel to geothermal could reduce wholesale electricity costs in Dominica by 15 to 25 percent, and help stabilize price fluctuations in the domestic market. Moreover, according to preliminary estimates, the country's overall geothermal potential far exceeds the near-term baseload needs of its small domestic market. (World Bank 2017)<sup>87</sup>

3.101. Geothermal energy provides Dominica with an opportunity to become a regional energy hub, transmitting excess supply produced from geothermal sources to neighbouring islands and earning considerable royalties from electricity exports. Guadeloupe and Martinique – both French territories – have shown interest in importing electricity. (World Bank 2017)<sup>88</sup> Dominica has made major progress towards developing the Wotten Waven-Laudat geothermal field in the Roseau Valley. Financing is being provided by the Agence Française de Développement, the European Union, Guadeloupe, Martinique, New Zealand and the World Bank. (World Bank 2017)<sup>89</sup>

3.102. A consideration when implementing reconstruction activities according to "build back better" is tariff policy. Box X below highlights how demand for key inputs needed for hardening infrastructure (i.e. steel and cement) are influenced by import tariff policy.

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<sup>83</sup> "Dominica Geothermal Risk Mitigation Project (P162149)", Project Document, 3 May 2017, World Bank Available at: <http://pubdocs.worldbank.org/en/352841531831371451/5224-XCTFDM619A-Dominica-Project-Document.pdf>

<sup>84</sup> "Dominica Geothermal Risk Mitigation Project (P162149)", Project Document, 3 May 2017, World Bank Available at: <http://pubdocs.worldbank.org/en/352841531831371451/5224-XCTFDM619A-Dominica-Project-Document.pdf>

<sup>85</sup> "Dominica Geothermal Risk Mitigation Project (P162149)", Project Document, 3 May 2017, World Bank Available at: <http://pubdocs.worldbank.org/en/352841531831371451/5224-XCTFDM619A-Dominica-Project-Document.pdf>

<sup>86</sup> "Dominica Geothermal Risk Mitigation Project (P162149)", Project Document, 3 May 2017, World Bank Available at: <http://pubdocs.worldbank.org/en/352841531831371451/5224-XCTFDM619A-Dominica-Project-Document.pdf>

<sup>87</sup> "Dominica Geothermal Risk Mitigation Project (P162149)", Project Document, 3 May 2017, World Bank Available at: <http://pubdocs.worldbank.org/en/352841531831371451/5224-XCTFDM619A-Dominica-Project-Document.pdf>

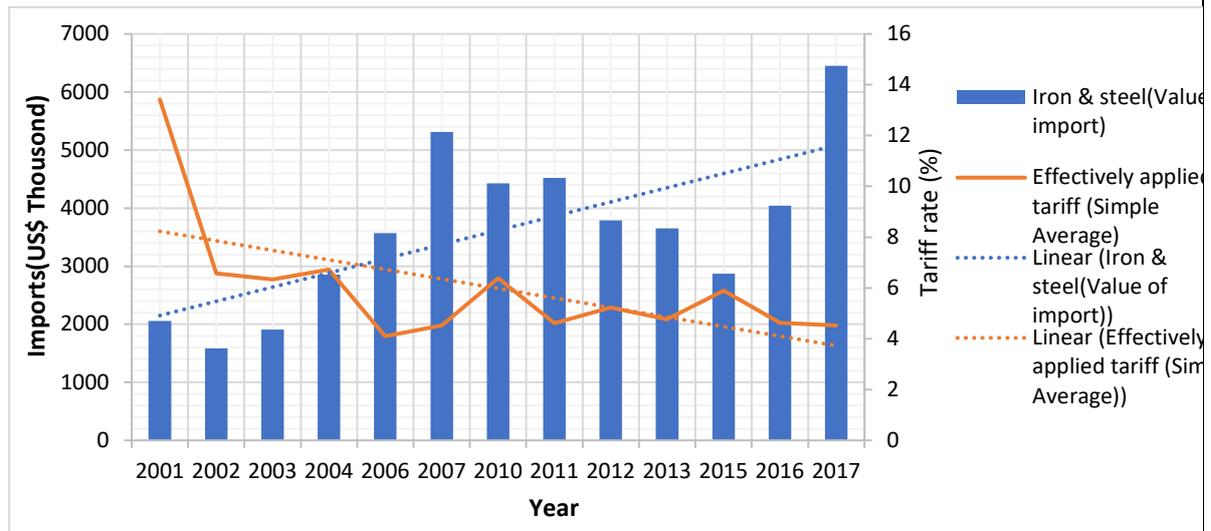
<sup>88</sup> "Dominica Geothermal Risk Mitigation Project (P162149)", Project Document, 3 May 2017, World Bank Available at: <http://pubdocs.worldbank.org/en/352841531831371451/5224-XCTFDM619A-Dominica-Project-Document.pdf>

<sup>89</sup> "Dominica Geothermal Risk Mitigation Project (P162149)", Project Document, 3 May 2017, World Bank Available at: <http://pubdocs.worldbank.org/en/352841531831371451/5224-XCTFDM619A-Dominica-Project-Document.pdf>

**Box 12: Tariffs and imports of cement and steel**

Tariffs imposed on imported building materials directly influence demand, domestic prices and so the volume of imports. In turn this influences the speed of recovery and resilience to future natural disasters. Figures 1 and 2 show the relationship between the effectively applied tariff rates and values of imports of iron and steel as well as articles of stone, plaster, cement, asbestos and mica. Figure 1 highlights how tariffs are inversely related to the value of imported iron and steel in Dominica. At higher tariff values, the import of iron and steel declines. This phenomenon is pronounced from 2010 to 2016 where tariff rates were on decreasing trajectory. The minimum tariff rates for iron and steel in 2001 and 2010 were 10% and 5% while the value in all other years was zero at a Bound Tariff (BND) rate of 50%.

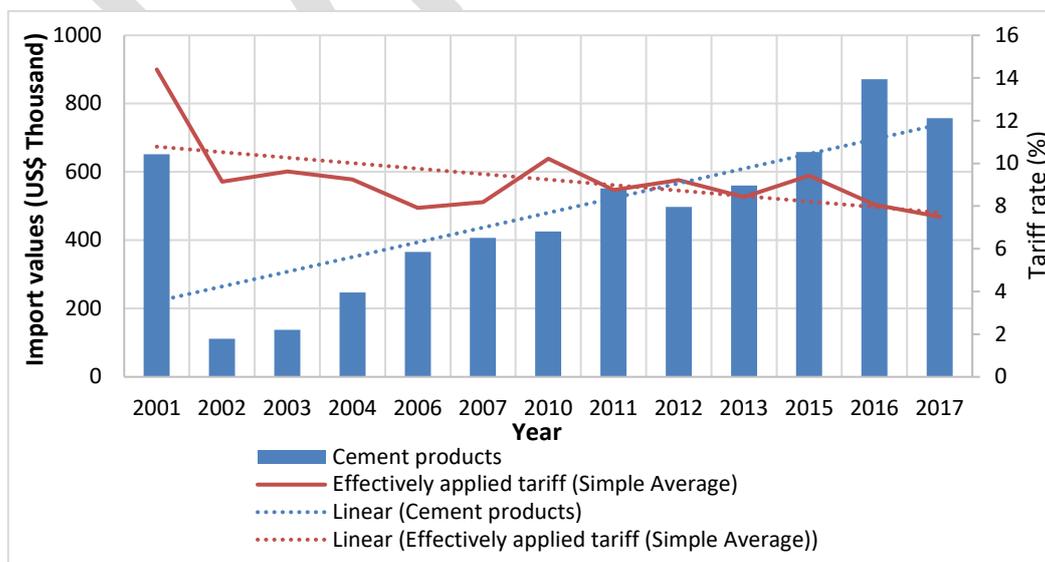
**Figure 6: Tariff and value of import of iron and steel in Dominica**



Source: Computation based on data from ITC and WITS

Figure 2 also shows the same inverse relationship between tariff rate and imports of articles of stone, plaster, cement, asbestos and mica. The inverse relationship is more visible between 2010 and 2017 where a sharp decline in the rate in 2015 was associated with a large increase in the value of imports. The drop in imports in 2017 can be attributed to port disruption due to Hurricane Maria.

**Figure 7: Tariff and value of import of stone, plaster, cement, asbestos & mica**



Source: WTO Secretariat calculations

## 4 ST LUCIA

### 4.1 Overview of vulnerability and storms

4.1. Saint Lucia is an upper-middle-income small island state with a population of 174,000 and gross national income per capita of US\$10,300. While Saint Lucia continues to increase resilience through investment in infrastructure and economic diversification, the country remains highly exposed to natural disaster risks. Historically, weather-related hazards such as winds and floods landslides, often caused by hurricanes, and droughts have adversely impacted the country, resulting in putting burdens on the national budget and its economy (World Bank, 2014).<sup>90</sup>

4.2. St. Lucia is listed fifth at risk for natural disasters among small states (IMF, 2018).<sup>91</sup> During 1997–2016, St. Lucia positions among the top 10 percent regarding losses from climate-related disasters and the top 15 percent of fatalities out of the 182 countries in the Climate Risk Index (IMF, 2018). The average annual economic losses caused by hydro-meteorological disasters amount to approximately 2% of GDP (World Bank, 2014). However, a single event has generated more substantial damages. For instance, Hurricane Allen in 1980 caused in damages and losses equivalent to 69 percent of GDP. More recently, Tropical Storm Debbie in 1994 and tropical wave in 1996 caused cumulative damage of US\$93.1 million to property and infrastructure, while Hurricane Tomas in 2010 resulted in a total impact at US\$336 million, equivalent to 43% of Saint Lucia's GDP (World Bank, 2014). More recently, the passage of Hurricane Matthew in October 2016 caused significant damage to the agriculture and some water sector, electricity and communication infrastructure.

4.3. St. Lucia was hit by multiple external shocks in the mid-2000s, including Hurricane Dean in August 2007, an earthquake in November 2007, the global food and energy price hikes in 2007–2008, and severe droughts in 2009 and 2010. The topography of St Lucia makes the country vulnerable to disasters. A combination of high slope angles and rainfall causes a high risk of landslides. In addition, underdeveloped infrastructure poses a challenge for the county to reduce vulnerability to disasters (World Bank, 2014)<sup>92</sup>.

4.4. Annual average loss from wind-related events and floods amount to approximately US\$49 million, or 3.4 percent of GDP. On average, once every 100 years, these costs outstrip US\$882 million, equivalent to more than 61 percent of GDP. This means that even without climate change, there is a 1 percent probability in any year that a disaster would incur national costs of more than 61 percent of GDP (IMF, 2018).<sup>93</sup> Besides, small-scale flooding is more frequent in low-lying areas (World Bank, 2014).

4.5. IMF research suggests that frequent and severe natural disasters would substantially harm long-term growth and fiscal sustainability. In a high CO2 emissions scenario, the average impact of natural disasters would increase from 3½ percent of GDP or more to at least 5 percent of GDP. Tax revenues would be negatively affected, and additional expenditure would be needed for immediate relief, social support, infrastructure rehabilitation, and reconstruction.<sup>94</sup>

### 4.2 Meetings with national authorities

4.6. The survey team's meetings began with a courtesy call on Ben Emmanuel, Cabinet Secretary in the Prime Minister's Office. Mr Emmanuel highlighted the commitment of the government to

<sup>90</sup> "Saint Lucia, Flood Event of December 24–25, 2013: A Report by the Government of Saint Lucia and the World Bank"

March 2014, Available at: <https://www.gfdr.org/sites/default/files/publication/pda-2014-saint-lucia.pdf>

<sup>91</sup> "St. Lucia - Climate Change Policy Assessment" (IMF Country report No. 18/181), IMF. (2018) Available at: <https://www.imf.org/en/Publications/CR/Issues/2018/06/21/St-46007>

<sup>92</sup> "Saint Lucia, Flood Event of December 24–25, 2013: A Report by the Government of Saint Lucia and the World Bank"

March 2014, Available at: <https://www.gfdr.org/sites/default/files/publication/pda-2014-saint-lucia.pdf>

<sup>93</sup> IMF. (2018). World Economic Outlook retrieved from <https://www.imf.org/external/datamapper/datasets/WEO/5>

<sup>94</sup> "2018 Article IV Consultation – Press Release, Staff Report, and Statement by the Executive Director for St Lucia", Jun 2018, IMF Country Report No. 18/179 Available at:

<https://www.imf.org/~media/Files/Publications/CR/2018/cr18179.ashx> The text references a further IMF report "St. Lucia Climate Policy Assessment", IMF Country Report No. 18/181 Available at: <https://www.imf.org/~media/Files/Publications/CR/2018/cr18181.ashx>

integrate resilience into government policy. Resilience was a central theme of the 2018-2019 budget cycle and was being promoted across government processes and procedures. Government agencies were being supported to see resilience as a critical part of their operations.

4.7. Discussing the impact of natural disasters, he contrasted the position of Saint Lucia with that of US residents in relation to Hurricane Katrina. While evacuation out of harm's way was an option in the US, this was not an option available for most Caribbean residents. A further point he stressed was that Saint Lucia suffered even when it was not directly hit by a storm event, through trade diversion and higher costs. An example here was the OECS currency union and single market through which the impacts of a disaster in one member were transmitted to other OECS members.

4.8. In small, open economies, Mr Emmanuel noted that trade plays a critical role in disaster mitigation. There was a need to recognize this role within trade rules. This point was further underscored in discussions with Permanent Secretary Titus Preville. He noted that within the WTO, the concept of an island was lost. For WTO Members within the UN category of Small Island Development States, the question was how to find an accommodation within the existing rules that recognized the reality of their vulnerability. He recommended that vulnerability should be factored into:

- Access to concessional development assistance (from which St Lucia was excluded by virtue of its income level). A suggestion he made in this respect was a vulnerability-adjusted GDP index that would allow small island states access on similar conditions to least-developed countries;
- Consideration of promoting resilience within the Aid for Trade initiative and recommendations on how resources should be directed to achieve this goal and infrastructure. Building resilience into infrastructure imposed higher costs (e.g. flood resistant roads) that added to an already heavy debt burden;
- Policy space, notably a peace clause providing freedom from WTO dispute settlement challenge during the recovery period after a storm. There was an existing body of work on small states and their vulnerabilities that highlighted these issues. He suggested that it was a source of disappointment that it took a destructive event such as Hurricane Maria for the WTO to take notice of these concerns. The Caribbean has already had to digest significant adjustment costs due to the loss of banana preferences for its export industry. It was important that the WTO recognized the ongoing adjustment imposed by natural hazards such as severe weather event. Flexibilities should be considered that would seek to promote resilience. The Caribbean was already experiencing situations where potential investors looking to establish businesses were rethinking their projects. Global warming made the region potentially less attractive from an investment perspective.

4.9. Permanent Secretary Titus Preville recalled that Prime Minister Chastanet had made the case for a change of perspective on the part of international financial institutions so as to consider resilience as a rationale for extending further concessional financing to the region. The high public debt position of the region and associated financing difficulties was another factor to consideration in this context. For small economies, resilience was not a choice. It was a question of when, not if, the next natural hazard would strike.

### **4.3 Meetings with public and private sector stakeholders**

4.10. On 29-30 August 2018, the WTO research team held a series of consultations with public and private sector stakeholders. The following section discusses the main issues arising from the consultations, organized according to trade issues arising in disaster response, disaster recovery and disaster resilience. Issues identified in the consultations are supplemented with information from other sources on the same topics.

### **4.4 Trade issues in response**

4.11. While St. Lucia was spared direct damage during the 2017 hurricane season, it felt the impact of successive storms on neighbouring islands, and further afield. An example given by a private sector stakeholder was in relation to express courier services used to export goods to the United

States. Damage inflicted by Hurricane Irma on the UPS regional hub for the Caribbean in Puerto Rico forced one private sector stakeholder indicated, and other exporters, to re-route exports to other express carriers and use alternative routings, in his case through Central America. The logistics disruption had resulted in a loss of orders and higher costs as new standards and certification requirements had to be met. The UPS hub had been closed for one month and had taken time to return to normal operations.

4.12. Weather-related disruption of maritime shipping was another factor cited by private sector stakeholders as affecting their operations, even though neither Hurricane Irma nor Maria affected St. Lucia directly. Damage and delays to ports in Florida had knock-on impacts in terms of importing and exporting consignments. One stakeholder cited US maritime transport and cabotage restrictions as a further complicating factor.<sup>95</sup> The impact of hurricanes on major ports is reportedly leading large shipping companies to re-examine their hub strategies for cargo trans-shipment operations. The impact of Hurricane Matthew on port operations in the Bahamas, a trans-shipment hub for Caribbean traffic, was cited as an example in this regard.<sup>96</sup> Box 13 below discusses disruption at Florida ports and related difficulties for Caribbean islands for cargo and cruise traffic.

#### **Box 13: Impacts to Florida Ports from Hurricane Maria**

- The Port of Miami, Port Everglades, Port of Palm Beach, and Port Canaveral will experience significant physical damage due to storm surge. Port facilities will also be impacted by wind damage, loss of power and communications, and roadway blockages.
- Cargo receipts and shipments along the east coast of Florida will be significantly disrupted for weeks, including the movement of containers at all ports, the receipt of gasoline at Port Everglades, and exports from the Port of Palm Beach.
- The Port of Palm Beach is a major exporter to the Bahamas and other Caribbean islands. Disruptions at this port could have a significant short-term economic impact for Caribbean islands and slow their recovery from Hurricane Irma.
- Ports along the east coast of Florida are the busiest cruise ports in the United States and will experience significant physical damage from storm surge, rain, and sustained winds that can disrupt cruise line operations for weeks or months.
- It will take weeks or months to return to full operations at terminals, depending upon the extent of the damage.

Source: US Department of Homeland Security 2017<sup>97</sup>

4.13. During Hurricane Maria, St Lucia had acted as a logistics hub for international and regional relief assistance for Dominica for response and recovery. St- Lucia's National Emergency Management Organization (NEMO) had experienced various challenges in sending relief goods to Dominica. One issue cited was container management. NEMO highlighted that had still not received back containers used to ship relief goods. This problem underscored the need for efficient transport and logistics systems across OECS and CARICOM countries.

<sup>95</sup> In advance of the arrival of Hurricane Maria, a waiver from the Jones Act was approved to land petroleum products to be delivered for relief assistance. A further waiver to the Jones Act was approved for all products being shipped to Puerto Rico in late September. "Department of Homeland Security Acting Secretary Elaine Duke Approves Waiver of Jones Act", 28 September 2017, US Department of Homeland Security. Available at: <https://www.dhs.gov/news/2017/09/28/department-homeland-security-acting-secretary-elaine-duke-approves-waiver-jones-act>

<sup>96</sup> "Hurricanes make operators review transshipment strategy", 17 October 2017 The Bulletin Panama. Available at: <http://thebulletinpanama.com/2017/10/hurricanes-make-operators-review-transshipment-strategy/>

<sup>97</sup> "Impacts to Florida Ports from Hurricane Irma", 7 September 2017, Office of Cyber and Infrastructure Analysis, US Department of Homeland Security. Available at: <http://fltrucking.org/wp-content/uploads/2017/09/Hurricane-Irma-Impacts-to-Florida-Ports-FOUO.pdf>

4.14. Local stakeholders agreed that past disasters had significantly impacted trade. For example, St Lucia's Customs and Exercise Department had observed a sudden surge of import consignments in the aftermath of Hurricane Tomas in 2010. One challenge discussed in this regard was differentiating commercial goods and relief goods. A point made by several agencies was that goods imported duty-free as relief items should not compete with local products, where available. The challenge of deciding which goods to supply as relief items for households was discussed and the point made that consumer demand was typically more diverse than government predicted.

4.15. One issue raised was whether a waiver system was necessary at all, or if relief could be better and more efficiently processed through regular commercial trade, if the necessary investment was made in trade facilitation systems. Revenue forgone was a factor highlighted by some public sector participants. Some suggested that a system of ex post relief from duties would be hard to manage, and could cause confusion from a revenue perspective. Some were concerned about the impact of import duties on government finances. Others instead highlighted that fiscal incentives were vital to response and recovery phases in several sectors, including tourism and construction sectors.

4.16. Several stakeholders, including the Chamber of Commerce, indicated that the speed in granting waivers after a disaster was critical. One suggestion made in this context was that a list of goods for duty waiver could be agreed before a disaster hits. The Chamber of Commerce raised examples of items to be duty exempted: hurricane straps and shutters, radios, generators, satellite phones, waterproof bags, and others. The Chamber of Commerce participates in national emergency management coordination committees. Non-automatic import licensing for chainsaws was highlighted by one participant as a potential constraint to waste management in the aftermath of hurricanes. Import licences were issued by the Ministry of Agriculture. Introduced as a forest protection measure, concern was raised that it would slow clearance of waste.

4.17. National consultation participants also discussed the process for drawing up lists of exempted goods. List of items to be exempted were devised by the National Emergency Management Office (NEMO). A Cabinet decision would then follow indicating which emergency items would be exempted from duties. This list would then be submitted to Customs and Exercise. The Customs and Exercise Department would then work with NEMO and other humanitarian agencies, such as the International Federation of the Red Cross and Red Crescent, to implement the waiver decision. In meetings with the Caribbean Disaster Emergency Management Agency (CDEMA), reference was made to guidance on potential goods to be exempted for import tariff and other taxes on relief goods. (Box 14 provides information on CDEMA and its activities.)

4.18. The six OECS-WTO Members are founding members of the Caribbean Community and Common Market, established in 1973 through the Treaty of Chaguaramas. Since 1991, CARICOM member States have sought to implement a common external tariff (CET), through a phased process. Exceptions are allowed permitting the non-application of the CET under certain circumstances. One of these situations is disaster response. Any change in tariffs by a CARICOM member must first be approved by the Council for Trade and Economic Development. This Council is composed of trade and development ministers from all member States and is responsible for promoting trade and economic development in CARICOM.<sup>98</sup>

4.19. The Treaty of Chaguaramas was revised in 1989 to allow for the creation of the CARICOM Single Market and Economy (CSME), a single economic space with free movement of goods, services, capital, and CARICOM nationals between member States; the revision was completed in 2000. The Treaty contains safeguard provisions. In the event of serious balance of payments and external financial difficulties, it allows for the adoption of restrictions on the right to establishment, to provide services and to move capital, as well as using quantitative restrictions on imports.<sup>99</sup>

4.20. Separate meetings held with the Caribbean Customs Law Enforcement Council (CCLEC) highlighted that preparedness of customs authorities was vital for disaster risk management. The Council had partnered with Caribbean Disaster Emergency Management Agency on training workshops for customs officials on disaster management. One proposal discussed with CCLEC was

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<sup>98</sup> "Trade Policy Review, Report by the Secretariat: OECS-WTO Members", 22 September 2014, WT/TPR/S/299/Rev.1

<sup>99</sup> "Trade Policy Review, Report by the Secretariat: OECS-WTO Members", 22 September 2014, WT/TPR/S/299/Rev.1

secondment of customs officers from other CCLEC members to help customs officers deal with post-crisis import surge. A point made by some private sector stakeholders was that customs had not extended its operating times during previous disasters, mainly due to personnel constraints.

4.21. Saint Lucia ratified the Trade Facilitation Agreement (TFA) on 8 December 2015. In a notification received on 16 September 2016<sup>100</sup>, Saint Lucia notified almost 50% of the commitments under category A, the commitments it implements in full on the entry into force of the TFA (22 February 2017). Measures related to trade facilitation measures for authorized operators were notified under category B, with an indicative date for implementation of 31<sup>st</sup> December 2020 and definitive date of implementation of 29 December 2023. Other measures notified in category B with definitive implementation dates, range between 2023 and 2033. Technical assistance for implementation was sought for all measure notified under category C, including notification for enhanced control or inspections, single window etc.<sup>101</sup>

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<sup>100</sup> <https://www.tfadatabase.org/uploads/notification/NLCA1.pdf>

<sup>101</sup> [https://www.tfadatabase.org/uploads/notification/NLCA1\\_3.pdf](https://www.tfadatabase.org/uploads/notification/NLCA1_3.pdf)

#### **Box 14: From response to management: the evolving role of the Caribbean Disaster Emergency Management Agency**

The Agency was established in 1991 as the Caribbean Disaster Emergency Response Agency (CDERA) with primary responsibility for the coordination of emergency response and relief efforts for its 18 participating Caricom and non-Caricom members states.<sup>102</sup>

Four of CDEMA's areas of responsibility relate to disaster response i.e.

1. mobilising and coordinating disaster relief;
2. mitigating or eliminating, as far as practicable, the immediate consequences of disasters in Participating States;
3. providing an immediate and coordinated response by means of emergency disaster relief to any affected Participating State;
4. securing, coordinating and providing to interested inter-governmental and non-governmental organisations reliable and comprehensive information on disasters affecting any Participating State(s).

A key mechanism for CDEMA in discharging its disaster response functions is the Regional Response Mechanism. The RRM is a network of CDEMA Participating States (PSs), national, regional and international disaster stakeholders through which external response and relief operations are coordinated. The RRM is regulated by the national disaster plans of participating states synced to a regional coordination plan, and agreements with partners. A review of the RRM in the aftermath of Hurricanes Irma and Maria concluded that persistent challenges in the logistics platform for timely delivery of personnel and supplies have prevented the mechanism realizing its full potential. Other constraints identified include: divergent standards, limited and unpredictable funding and coordination issues as other actors operate outside the framework.

In 2001, recognising the critical link between disasters and sustainable development, CDERA moved to the adoption of a strategic framework for Comprehensive Disaster Management (CDM) i.e. the integration of disaster management considerations into development planning and decision-making processes. The Caribbean Disaster Emergency Management Authority succeeded CDERA with a new legal mandate that entered into force in 2009. Two CDEMA functional areas relate to Disaster Management and are guided by a Regional Comprehensive Disaster Management Strategy for the period 2014-2024. These are:

5. encouraging: (i) the adoption of disaster loss reduction and mitigation policies and practices at the national and regional level; and (ii) cooperative arrangements and mechanisms to facilitate the development of a culture of disaster loss reduction; and
6. coordinating the establishment, enhancement, and maintenance of adequate emergency disaster response capabilities among the Participating States.

To help advance the regional CDM strategy, CDEMA has articulated an "Enhanced Resilience Pathway" that focuses on promoting: Social Protection for the Marginal and Most Vulnerable; Enhanced Economic Opportunities; Improved Environmental Protection; Safeguarded Infrastructure and Operational Readiness for Response and Recovery. Priority sectors for the mainstreaming CDM include agriculture, tourism and finance and economic development.

Source: Caribbean Disaster Emergency Management Agency<sup>103</sup>

## **4.5 Trade issues in recovery**

4.22. Past natural disasters have differentially impacted different economic sectors in St Lucia. Worst hit has been the agriculture sector. The sector was slow to recover after Hurricane Tomas

<sup>102</sup> CDEMA comprises 18 participating states: Anguilla, Antigua and Barbuda, Commonwealth of the Bahamas, Barbados, Belize, Commonwealth of Dominica, Grenada, Republic of Guyana, Haiti, Jamaica, Montserrat, St. Kitts & Nevis, Saint Lucia, St. Vincent & the Grenadines, Suriname, Republic of Trinidad & Tobago, Turks & Caicos Islands and the Virgin Islands

<sup>103</sup> CDEMA website, "Rapid Review of the Regional Response in the Hurricanes Irma and Maria Events", October 2017, Caribbean Disaster Emergency Management Agency Available at: [https://www.cdema.org/Rapid\\_Review\\_of\\_the\\_Regional\\_Response\\_-\\_Irma\\_and\\_Maria\\_Events\\_2017\\_Final.pdf](https://www.cdema.org/Rapid_Review_of_the_Regional_Response_-_Irma_and_Maria_Events_2017_Final.pdf)

(2010), particularly banana plantations which were severely affected by silt deposits, debris, flooding and snapping of plants. Hurricane Tomas affected 98 per cent of the nation's banana cultivation. Damage to bananas accounted for approximately 75% of the total damage to the agriculture sector.<sup>104</sup> Hurricane Tomas caused significant damage to road infrastructure, a further factor limiting plantation recovery in rural areas.

4.23. In addition to the losses caused by Hurricane Tomas, a disease outbreak further damaged the sector. Since 2010, the industry has been threatened by a soil-borne fungus black sigatoka (also known as banana leaf spot disease), which has infected roughly 70 percent of the country's banana plants. The government and development partners have been investing in a multi-year Banana Productivity Improvement Project to control the disease. Box 15 below discusses natural disasters and the spread of pests and diseases.

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<sup>104</sup> Emergency Project Paper on a Proposed Credit to Saint Lucia for a Hurricane Tomas Emergency Recovery Project, 17 February 2011, World Bank Report No: 59604-LC, Available at: <http://documents.worldbank.org/curated/en/371301468112476687/pdf/596040P1252050IDA1R20111004511.pdf>

### Box 15: Natural disasters and the spread of pests and diseases

Large scale disturbance events such as hurricanes, cyclones and typhoons have long been associated with the establishment and spread of invasive species. Alterations of habitat characteristics by natural and anthropogenic disturbances, or change in disturbance regimes, are quite often associated with invasion success. Disturbances benefit invasive species by reducing competition with resident species and increasing resource availability.<sup>105</sup> Not only may invasive species be injurious to agricultural production, they may expose affected countries to sanitary and phytosanitary measures taken by trading partners to restrict the entry, establishment and spread of these alien pests through international trade.

Hurricane Joan (1998) is thought to have carried African locusts across the Atlantic. A swarm of the locust, *Schistocerca gregaria*, blown off the Western African coast near the Cape Verde Islands was subsequently picked up storm winds and transported the 3,000 miles to the Caribbean. Fatigue from the five-day crossing, exposure to salt air, unaccustomed humidity and natural predators in the local bird population prevented the locusts from establishing or spreading on the islands where sightings were made.<sup>106</sup>

Hurricane Irma caused damage totalling some \$760 million in damage to Florida's citrus sector. The hurricane winds may also have encouraged the spread of Asian citrus psyllid. This insect is a vector for citrus greening disease (yellow dragon disease) that causes fruit to be misshapen and overly bitter.<sup>107</sup> Research also suggests that hurricanes may also helped spread the cactus moth, *Cactoblastis cactorum*, from the Caribbean into North America. DNA analysis of the cactus moths highlighted that populations in Florida were genetically closer to those of Cuba than to the rest of the population sampled in Florida.<sup>108</sup>

Flooding is known to have an important role in spreading the fungus associated with *Fusarium oxysporum* f. sp. *Cubense* (FOC TR4). FAO explains that spores can be carried in irrigation water or surface run-off.<sup>109</sup> Furthermore, fungus can remain dormant in the soil for more than 30 years until a susceptible banana plant is established nearby.<sup>110</sup> In Jamaica, FOC TR4 was associated with flooding, while in Guadeloupe, the disease has been associated with volcanic eruptions.<sup>111</sup> Preventing the entry of contaminated planting material, soil and worker equipment etc. to disease free areas is considered the most effective method of controlling the disease.

4.24. Stakeholders noted that the agriculture sector tends to need more time to recover from natural disasters than other sectors. The example was cited of Grenada and nutmeg. Grenada had been the second biggest nutmeg producer in the world prior to Tropical Storm Earl and Hurricane

<sup>105</sup> "Hurricane Activity and the Large-Scale Pattern of Spread of an Invasive Plant Species". 30 May 2014, Bhattarai GP, Cronin JT (2014) PLoS ONE 9(5): e98478. Available at: <https://doi.org/10.1371/journal.pone.0098478>

<sup>107</sup> "One-two punch of disease and Irma has left Florida citrus reeling" 10 February 2018, Kalhan Rosenblatt, NBC News. Available at: <https://www.nbcnews.com/storyline/hurricane-irma/one-two-punch-disease-irma-has-left-florida-citrus-reeling-n839996>

<sup>108</sup> "A potential invasion route of *Cactoblastis cactorum* within the Caribbean region matches historical hurricane trajectories", May 2015, Guadalupe Andraca-Gómez, Mariano Ordano, Karina Boege and Cesar Dominguez, Biological Invasions, 17(5) · May 2015 Available at: [https://www.researchgate.net/publication/274572420\\_A\\_potential\\_invasion\\_route\\_of\\_Cactoblastis\\_cactorum\\_within\\_the\\_Caribbean\\_region\\_matches\\_historical\\_hurricane\\_trajectories](https://www.researchgate.net/publication/274572420_A_potential_invasion_route_of_Cactoblastis_cactorum_within_the_Caribbean_region_matches_historical_hurricane_trajectories)

<sup>109</sup> *Fusarium Wilt Tropical Race 4 (FOC TR4)*, Food and Agriculture Organization of the United Nations. Available at: <http://www.fao.org/world-banana-forum/projects/fusarium-tr4/disease/en/>

<sup>110</sup> *Fusarium Wilt Tropical Race 4 (FOC TR4)*, Food and Agriculture Organization of the United Nations. Available at: <http://www.fao.org/world-banana-forum/projects/fusarium-tr4/disease/en/>

<sup>111</sup> *Fusarium wilt or Panama disease: the disease, historic overview, current situation and potential impact of TR4 in Latin American and the Caribbean*, Miguel Angel Dita Rodriguez, EMBRAPA, Available at: [http://www.fao.org/fileadmin/templates/agphome/documents/Pests\\_Pesticides/caribbeantr4/03HistoryImpact.pdf](http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/caribbeantr4/03HistoryImpact.pdf)

Emily in 2005. These storms had destroyed more than 60 per cent of the island's nutmeg production. Replanted seedlings took more than 10 years to fully mature.<sup>112</sup>

4.25. The impact of disasters on the tourism sector was discussed. A meeting with the Caribbean Tourism Organization highlighted public misconception in target tourist markets that the entire Caribbean had been struck by 2017 storms. CTO reported significant trade destruction (i.e. cancellation of holidays) and trade diversion (i.e. booking to other destinations). Trade diversion was also evident within the Caribbean, with cruise arrivals up 300% in St Kitts and Nevis and a cruise ships spending additional days at Castries. The hurricane season resulted in an estimated (loss) in 2017 of 826,100 visitors to the Caribbean, compared to pre-hurricane forecasts. These visitors could have generated US\$741 million and supported 11,005 jobs.<sup>113</sup>

4.26. According to Caribbean Tourism Organization statistics, St. Lucia total visit arrivals in 2017 hit an all-time high, when the island welcomed 1,105,541 travellers. St. Lucia also recorded the highest growth among CTO member countries, registering an 11 percent increase. Cruise sector recorded a 14 percent increase, reaching 669,217 - an additional 81,264 visitors despite the eight-month closure of the Pointe Seraphine Berth. The tourism sector is the primary source of foreign currency, accounting for 50.7% of exports as a percentage of GDP in 2017 (IMF 2018). Increases in hotel stock, new flights routes and expansion in arrivals from key US and EU markets drove the growth in arrivals. Trade diversion, as tourists were rebooked from other hurricane-affected destinations, may have exerted an influence on increased bookings in the final quarter.

4.27. Tourism in St. Lucia is limited by capacity constraints, including an inadequate road network and an outdated international airport. (IMF 2018)<sup>114</sup> An expansion and modernization of Hewanorra International Airport, with support from development partners, is in the pipeline. This investment should also shave an important resilience dimension in the context of future meteorological hazards.

4.28. One concern raised by stakeholders at the national consultation was to ensure that the necessary plans are in place ex ante to deal repatriation of foreign nationals in the event of a disaster. In separate meetings with the Caribbean Tourism Organization (CTO), they explained how they had coordinated with CDEMA on the issue of tourist repatriation during the emergencies created by Hurricanes Irma and Maria. In CTO's opinion, the 2017 disasters had highlighted some weaknesses in the region regarding this issue.

4.29. CTO suggested that clear policies were needed to deal with foreign nationals during an emergency, in view of structural changes in how the tourism market is structured. Some hotels were not members of an association of national hotels. Some privately owned accommodation facilities were not formally registered. Sharing economy platforms, such as Airbnb, had further decentralized the tourist economy. As such, it was challenging for public agencies to know where tourists were in the country. In this context, a point raised at the national consultation was the need for the national emergency management authorities to be able to access immigration information – systems which were not currently integrated.

4.30. Another issue raised by CTO was the need to agree how to deal with repatriation of nationals from other OECS states. The Revised Treaty of Basseterre Establishing the OECS Economic Union, signed on 18 June 2010 in St. Lucia, establishes a single financial and economic space within which goods, services, people, and capital move freely, monetary and fiscal policies are harmonized, and countries continue to adopt a common approach to trade, health, education, and environment, as well as to sectoral development in agriculture, tourism and energy.<sup>115</sup> With free movement of labour,

<sup>112</sup> "Grenada: A Nation Rebuilding An assessment of reconstruction and economic recovery one year after Hurricane Ivan", 31 October 2005, World Bank Group. Available at:

[http://siteresources.worldbank.org/INTLACREGTOPHAZMAN/Resources/grenanda\\_rebuilding.pdf](http://siteresources.worldbank.org/INTLACREGTOPHAZMAN/Resources/grenanda_rebuilding.pdf)

<sup>113</sup> "The Impact of the 2017 Hurricane Season on the Caribbean's Tourism Sector", April 2018, World Travel and Tourism Council Available at: <https://www.wttc.org/-/media/files/reports/2018/caribbean-recovery-report---executive-summary.pdf>

<sup>114</sup> " 2018 Article IV Consultation – Press Release, Staff Report, and Statement by the Executive Director for St Lucia", Jun 2018, IMF Country Report No. 18/179 Available at: <https://www.imf.org/~media/Files/Publications/CR/2018/cr18179.ashx>

<sup>115</sup> The Treaty of Basseterre created the Organisation of Eastern Caribbean States with the goal of promoting cooperation and economic integration in the Eastern Caribbean. The OECS came into being in 1981, with Antigua and Barbuda, Grenada, Montserrat, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines as members, and Anguilla and the British Virgin Islands are associate members. Source: Trade

national authorities potentially faced difficulties in assuring repatriation of fellow OECS nationals. Box 16 highlights recommendations made by the World Travel and Tourism Council on policy initiatives to support recovery and resilience.

#### **Box 16: Tourism and Natural Disasters**

Travel & Tourism is one of the most important economic sectors in the Caribbean. The 46.7 million international visitors who came to the region in 2016 spent US\$31.4 billion which supported a total of \$56.4 billion in GDP and 2.4 million jobs. Meanwhile, the domestic market generates more than 25% of the region's Travel & Tourism GDP.

Overall, Travel & Tourism contributes 15.2% of the Caribbean's GDP and 13.8% of employment. However, in many Caribbean countries, the sector accounts for over 25% of GDP – more than double the world average of 10.4%. In the case of the British Virgin Islands (BVI), the sector contributes 98.5% of GDP – the highest share of any country worldwide.

It is therefore vital to the Caribbean economy that Travel & Tourism recovers as quickly as possible from the damage caused by the unusually severe hurricanes of 2017 – most notably Hurricanes Irma and Maria in September. They had a major impact on popular tourist destinations such as the BVI and Puerto Rico, although around two thirds of the region avoided any damage.

In the view of the World Travel and Tourism Council, governments across the region can work together and with the private sector to speed up recovery through a range of policy initiatives including:

- increasing access to capital for SMEs, and easing entry and work permit restrictions for specialised services, which will incentivise the private sector to speed up recovery;
- increasing duty-free exemptions on commonly-purchased goods and reduce tourism costs such as departure taxes and resort fees, which will stimulate travel and traveller spending;
- improving the ease and experience of traveller arrivals and departures, though use of technology in airports and visa facilitation, which will increase customer satisfaction and the attractiveness of the region;
- investing in tourism sector training and education to sharpen and upgrade the skills of temporarily displaced workers, which will ensure the sector has access to a skilled workforce as it recovers and grows;
- improving connectivity between islands, which will increase the competitiveness of the Caribbean as a destination and spread the benefits more widely;
- providing trip insurance when conditions in the host destination are unstable, which will encourage visitors to continue to visit; and
- adopting a specialised approach to marketing and public relations, including establishment of a long term messaging strategy, creating a rainy-day fund for tourism marketing and supporting regional tourism marketing programmes.

Source: World Travel and Tourism Council<sup>116</sup>

4.31. In November 2017, United Nations World Tourism Organization (UNWTO) members met and issued the Montego Bay Declaration. This (UN-WTO) Declaration is a 15 (fifteen) point commitment

Policy Review, Report by the Secretariat OECS-WTO Members WT/TPR/S/299 Available at: [https://www.wto.org/english/tratop\\_e/tpr\\_e/s299\\_e.pdf](https://www.wto.org/english/tratop_e/tpr_e/s299_e.pdf)

<sup>116</sup> "The Impact of the 2017 Hurricane Season on the Caribbean's Tourism Sector", April 2018, World Travel and Tourism Council Available at: <https://www.wttc.org/-/media/files/reports/2018/caribbean-recovery-report---executive-summary.pdf>

to greater regional cooperation, improved crisis preparedness, and a blue economy approach to growth. It seeks to move to more resilient and inclusive tourism that sustains both environment and people of small island states, with tourism creating shared value. Three points of the declaration of relevance for disaster recovery and resilience are as follows:

- Point 9: Governments, the UN system, global and regional financial institutions and the private sector shall cooperate to promote safe, secure and seamless travel and build resilience for tourism by advancing crisis preparedness and management capabilities as well as the full integration of tourism in emergency structures;
- Point 13: Governments, private sector, donors and the international and regional organizations shall support the development of a blue economy considering the specificities and vulnerabilities of Islands States in terms of natural resources, impact of climate change and extreme weather events as well as the high reliance of tourism on the ocean for marine activities, transportation, coastal protection and resilience.
- Point 15: Governments, private sector, donors and the international and regional organizations shall support the establishment of a Global Tourism Resilience Centre in the Caribbean, including a Sustainable Tourism Observatory, to assist destinations' preparedness, management and recovery of crises which impact tourism and threaten economies and livelihoods.<sup>117</sup>

#### 4.6 Trade issues in resilience

4.32. Disasters pose a significant fiscal burden to government budgets, although few studies examine impacts of disasters on debt. Specifically, several ministries and agencies expressed that natural disasters adversely affected national debts. There is a regional assessment to explore this issue. Though the government of Saint Lucia has developed an integrated disaster risk management program, fiscal deficits and debt accumulations, many of which stem from previous disasters, have forced the government to rely on ad hoc budget reallocations and donors' emergency assistance.

4.33. Stakeholders at the national consultation discussed the macroeconomic impacts of disasters. Department of Finance pointed out that public debt rose after the hurricanes. Natural disasters affect government debts through increased expenditure as well as decreased revenues. Department of Finance mentioned that several measures, such as Caribbean Catastrophe Risk Insurance Facility (CRRIF), contingency funds, international assistance, government reserves, and bonds, mitigate the pressure from disasters on public debt. Several stakeholders argued that high public debt limits financing options for disaster risk management. To maintain the sustainability of St. Lucia's budget, grant financing needed further scaling-up.

4.34. Debt sustainability was also a topic discussed at a meeting with the Caribbean Development Bank. In their view, financial buffers were vital for disaster response and recovery in the view of CDB, otherwise disasters continue a vicious circle of deteriorating debt sustainability. The Caribbean Development Bank supports member countries to mitigate effects of disasters on debt by providing various forms of financial support, including assisting in saving funds, helping building resilience, and providing policy-based loans for exogenous shocks. For example, the Community Disaster Risk Reduction Trust Fund finances community-based disaster risk reduction and climate change adaptation initiatives at the local level. In July 2014, the CDB also launched a Natural Disaster Risk Management Programme to reduce vulnerability to the long-term impacts of natural hazards, by strengthening regional, national and community-level capacities for preparedness, management and coordinated interventions.

4.35. In the view of the IMF, high public debt and limited risk-transfer instruments suggest that self-insurance has a key role in preparing for natural disasters. Considering the historic cost of disasters and their expected intensification, a savings fund of 5 percent of GDP, with a strong governance framework, would provide the necessary resources for relief and reconstruction without increasing public debt when disasters occur. Revenues from the Citizenship-by-Investment program

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<sup>117</sup> "Montego Bay Declaration on Jobs and Inclusive Growth: Partnerships for Sustainable Tourism on the occasion of the International Year of Sustainable Tourism for Development 2017", 29 November 2017. United Nations World Tourism Organization, Available at: [http://cf.cdn.unwto.org/sites/all/files/pdf/jamaica\\_declaration\\_final\\_clean.pdf](http://cf.cdn.unwto.org/sites/all/files/pdf/jamaica_declaration_final_clean.pdf)

(CIP) and the new residency program, together with receipts from a carbon tax, could be used to finance this fund. IMF 2018<sup>118</sup> Box 17 below discusses policy trade-offs in building resilience. (IMF 2018<sup>119</sup>)

### **Box 17: Policy Trade-Offs in Building Resilience to Natural Disasters**

Despite the surge in donors' assistance that follows these events, disasters leave deep scars in the fiscal position, with public debt increasing and little fiscal space left for government programs, including climate-related ones. Building resilience is therefore necessary not only to reduce the human, social, and economic costs associated with climate and natural disasters, it is also a way to exit the vicious circle of natural disasters/high public debt that St. Lucia has experienced with many other countries in the region.

Building resilience is key to cope with natural disasters. A do-nothing policy delivers dramatic negative outcomes in the economy, with large permanent losses of capital, output, and growth and a much larger increase in taxes. Financial protection and structural protection are key elements of a two-pronged strategy to build resilience.

- Financial protection is a combination of self-insurance, risk-transfer instruments, and other financial tools that provide the government with the necessary liquidity immediately after the event for relief purposes as well as resources to finance promptly the reconstruction. For a country like St. Lucia, which needs fiscal adjustment to attain debt sustainability, non-debt-creating instruments like insurance and self-insurance are most important. Financial protection has the additional benefit of reducing the government's contingent liabilities and building buffers that improve sustainability and reduce the risk premium on public debt.
- Structural protection is a series of actions that facilitate adaptation to climate change and minimize the impact of natural disasters. These include investment in resilient infrastructure and roadways, water supply systems, land use planning and management, and agriculture. The additional advantage of structural protection is a more resilient capital stock, which reduces the cost of capital and stimulates private investment.

IMF research examines potential trade-offs between the different policy approaches. It suggests structural protection for St Lucia is the preferred policy if the government can reconstruct at least 85 percent of the destroyed public capital stock before the next disaster hits. Should the government's ability to reconstruct public capital be lower, the financial protection policy would lead to a lower output loss. Moreover, low efficiency of public investment would further reinforce the advantage of financial protection. This conclusion can be generalized to countries where financial constraints are prevalent and efficiency in public investment procedures is low. While the paper analyses two stylized policies, these policies are complementary and both required for an optimal strategy for building resilience.

Source: IMF 2018<sup>120</sup>

4.36. St. Lucia has a well-developed insurance industry, although under-insurance is the norm. All mortgaged properties must carry property and life insurance. Most insurers issue natural catastrophe coverage as extensions or endorsements of existing fire and allied perils policies. However, the majority of the residential property stock (80 percent) is currently not insured against natural disasters, given the perceived high cost. For businesses, the Financial Services Regulation Authority considers that under-insurance is also likely to be a significant problem, given the relatively low

<sup>118</sup> " 2018 Article IV Consultation – Press Release, Staff Report, and Statement by the Executive Director for St Lucia", Jun 2018, IMF Country Report No. 18/179 Available at: <https://www.imf.org/~media/Files/Publications/CR/2018/cr18179.ashx>

<sup>119</sup> " 2018 Article IV Consultation – Press Release, Staff Report, and Statement by the Executive Director for St Lucia", Jun 2018, IMF Country Report No. 18/179 Available at: <https://www.imf.org/~media/Files/Publications/CR/2018/cr18179.ashx>

<sup>120</sup> " 2018 Article IV Consultation – Press Release, Staff Report, and Statement by the Executive Director for St Lucia", Jun 2018, IMF Country Report No. 18/179 Available at: <https://www.imf.org/~media/Files/Publications/CR/2018/cr18179.ashx>

median income of local entrepreneurs. Under-insurance creates fiscal risk in the form of a possible contingent liability to government. (IMF 2018)<sup>121</sup>

4.37. Under-insurance of public assets slows reconstruction after disasters. Most public assets in St. Lucia, including critical buildings such as hospitals and schools, are not currently insured against natural disasters. Parastatals purchase insurance outside of the oversight of the central government and there is no centralized body that monitors the insurance of public assets. A sampling of 10 parastatal insurance premium payments shows that premium payments rose by 800 percent after Hurricane Thomas in 2010. (IMF 2018)<sup>122</sup>

4.38. St. Lucia has an innovative insurance scheme for low-income individuals. Low-income individuals in St. Lucia are eligible for insurance from wind and excess rain through the Livelihoods Protection Policy, a weather-index based insurance policy launched by the Munich Climate Insurance Initiative in partnership with the Caribbean Catastrophe Risk Insurance Facility (CCRIF) in 2013. Thirty-one individuals in St. Lucia received pay-outs totalling US\$102,000 on their Livelihood Protection Policies due to Hurricane Matthew. The program provides swift cash pay-outs following extreme weather events (high winds and heavy rain), enabling policyholders to recover quickly. The product is available across the island through local distribution channels, including co-operative banks, credit unions, and farmer associations.

4.39. Through CCRIF, St. Lucia pays US\$2.42 million for an annual premium, and at maximum, the country can receive a pay-out of US\$66.6, close to 4% of GDP (IMF, 2018). The state received pay-outs of US\$1 million for an earthquake in 2007 and US\$3.2 million for Hurricane Tomas in 2010 (IMF, 2018). After a declaration of a state of emergency, the Government can also receive up to US\$1 million immediately as part of the Contingency Emergency Response Component (CERC) of the World Bank's Disaster Vulnerability Reduction Project (DVRP) (IMF, 2018). Additionally, St. Lucia is working with the World Bank towards a catastrophe deferred drawdown option (Cat DDO) of US\$20 million (IMF, 2018). The Cat DDO is an ex-ante financial tool that provides rapid disbursement of funds after the declaration of a state of emergency due to natural or health disasters (IMF, 2018).

4.40. Saint Lucia's market is open to "reinsurance services" according to the country's General Agreement on Trade in Services (GATS) schedule. It is possible to provide reinsurance services to Saint Lucians on a cross-border basis without a commercial presence. Saint Lucians can also subscribe to foreign based reinsurance companies without restrictions. The schedule includes market access limitations for foreign reinsurance companies wishing to establish a commercial presence in Saint Lucia. The schedule states that "only corporate entities are allowed to conduct insurance business in St. Lucia. All such entities must first be registered by the Registrar of Insurance". Market access for foreign persons wishing to work in the reinsurance sector in Saint Lucia are subject to horizontal limitations concerning work permit regulations. Saint Lucia's horizontal limitation in mode 4 notes inter alia that "the issue of permits is normally confined to persons with specialized managerial and technical skills and the administration of the regime is normally guided by a labour market test".

4.41. The government of St. Lucia has developed institutions to respond to disasters over the last two decades. The governing legislation for disaster risk management includes 1) the Emergency Powers Disaster Act in 1995, 2) the Disaster Preparedness and Response Act No. 13 (2000) and its Amendment Act, 3) the Disaster Management Act No. 30 of 2006. Furthermore, in 2006 the National Emergency Management Organization (NEMO) was established. NEMO administers all aspects of disaster risk management, including planning, mitigation, response, damage assessment, and reconstruction, based on the 2007 National Disaster Management Plan. The budget of NEMO is about US\$240,000 a year (0.01 percent of GDP), with an additional budget for an initial response to any declared disaster. The central role of NEMO is to coordinate different stakeholders, ministries, and agencies. The Chamber of Commerce and several industries participate in NEMO's meetings and councils.

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<sup>121</sup> " 2018 Article IV Consultation – Press Release, Staff Report, and Statement by the Executive Director for St Lucia", Jun 2018, IMF Country Report No. 18/179 Available at: <https://www.imf.org/~media/Files/Publications/CR/2018/cr18179.ashx>

<sup>122</sup> " 2018 Article IV Consultation – Press Release, Staff Report, and Statement by the Executive Director for St Lucia", Jun 2018, IMF Country Report No. 18/179 Available at: <https://www.imf.org/~media/Files/Publications/CR/2018/cr18179.ashx>

4.42. The World Bank, the Caribbean Development Bank (CDB), the Japan International Cooperation Agency (JICA) and others have funded a sequence of projects to strengthen emergency preparedness, enhance early warning systems, and build communities' capacity to manage disasters. In light of progress made, and lessons from recent disasters, current World Bank and European Union support is putting more weight on making infrastructure resilient (e.g., school buildings and bridges). (IMF, 2018)<sup>123</sup> Another example of support from development partners is the Natural Disaster Risk Management Program, a €20 million initiative of the group of African, Caribbean and Pacific States, funded by the European Union. The program supports disaster risk reduction and climate change adaptation activities in CARIFORUM countries. This initiative started in July 2014 and is being implemented by the CDEMA in collaboration with the Caribbean Development Bank and the Government of the Dominican Republic. The Program seeks to strengthen the capacities of authorities and other organizations at the national, regional and community levels to carry out coordinated interventions and provide timely responses to the challenges imposed by natural disasters and the effects of climate change.

4.43. During the national consultation meetings, several stakeholders and policymakers agreed on the significance of the private sector in building resilience. Notably, the development of insurance market is needed to increase the resilience. Regarding government procurement, it was noted that the Government was also amending its public procurement legislation, which can strengthen the efficiency and flexibility of emergency public procurement after disasters

4.44. The Cariforum Economic Partnership Agreement contains a chapter on government procurement, which aims at promoting non-discrimination, transparency and predictability.<sup>124</sup> The chapter sets out principles and minimum transparency rules that procuring entities should respect when tendering. These rules apply to contracts over a US\$200,000 threshold tendered by central authorities. In practice, most OECS government procurement is not covered by these provisions.<sup>125</sup>

4.45. Several participants at the national consultation underscored the critical importance of business continuity planning for governments and businesses. They argued that more efforts were needed for governments and companies to continue operations and businesses during disasters. NEMO in turn highlighted there were high demand for business continuity planning in hotel, power, bank industries. The Chamber of Commerce indicated that they wanted to provide their members with training opportunities on business continuity planning and risk analysis.

4.46. One comment made was that most government departments lacked business continuity plans. Such plans would also prove useful in the face of other hazards, such as electricity outages or computer network hacks that could disable government systems. The example of electronic customs clearance systems was given.

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<sup>123</sup> " 2018 Article IV Consultation – Press Release, Staff Report, and Statement by the Executive Director for St Lucia", Jun 2018, IMF Country Report No. 18/179 Available at: <https://www.imf.org/~media/Files/Publications/CR/2018/cr18179.ashx>

<sup>124</sup> "Economic Partnership Agreement between the CARIFORUM States, of the one part, and the European Community and its Member States, of the other part", 30.10.2008 Official Journal of the European Union, L 289/I/4 Available at: <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:289:0003:1955:EN:PDF>

<sup>125</sup> "Trade Policy Review, Report by the Secretariat: OECS-WTO Members", 22 September 2014, WT/TPR/S/299/Rev.1

### Box 18: International Standards, Disaster Risk Reduction and Business Continuity

The United Nations Economic Commission for Europe (UNECE) and the International Organization for Standardisation (ISO) are two organizations involved in the development of standards for disaster risk reduction and business continuity.

UNECE works with standards-setting organizations to make standardized guidelines supporting disaster risk reduction more readily available and accessible. UNECE has developed a booklet on Standards for Disaster Risk Reduction to encourage their use by business and in regulatory practice and policy-making. This booklet outlines voluntary standards for: the prevention of disaster risks, for the management of disaster risks and crisis management in regulatory frameworks was published in 2015.<sup>126</sup> On 15 November 2018, the UNECE Working Party on Regulatory Cooperation and Standardization adopted a recommendation on "Standards and Regulations for Sustainable Development" which aims to standardize language on managing risks in regulatory systems. UNECE is engaged in disaster preparedness in five areas: standards and regulatory frameworks, housing and land management environmental management, measurement and statistics, and protective functions of forests.

Assurance that appropriate business continuity arrangements in place is an area that ISO has addressed. Responding to inter-dependence of business and the need that key suppliers and partners would continue to provide key products and services, even when incidents occurred, ISO developed ISO/TC 223, Societal security, and ISO 22301:2012, Societal security – Business continuity management (BCM) systems – Requirements. ISO 22301 is a management systems standard for BCM which can be used by organizations of all sizes and types. These organizations will be able to obtain accredited certification against this standard and so demonstrate to legislators, regulators, customers, prospective customers and other interested parties that they are adhering to good practice in BCM.<sup>127</sup>

Source: UNECE and ISO

4.47. A point made during the national consultation was the significance of data protection for disaster preparedness. Some sectors, for example, the telecom industries, held disaster drills to protect their data. Other sectors were far more vulnerable from the perspective of data protection, with primary data centres located at a sea level. Alternative site and cloud-storage was important to mitigate the impact of natural disasters. They also pointed out that there was not sufficient consciousness about data backup and management. NEMO has entered discussions with other government departments and companies to mitigate outage and disasters.

4.48. Several stakeholders asserted that rigorous implementation of the building code, under the responsibility of the Ministry of Physical Planning, was essential to mitigate risks. Some others noted that affordability of housing was a constraint. The Government is attempting to make housing more affordable and resilient so as to reduce contingent liabilities caused by disasters by improving the mortgage market so as to allow more poor households to access housing loans.

4.49. Several stakeholders, notably in from the Ministry of Agriculture indicated the significance of climate and weather forecasting for disaster resilience. The importance of meteorological systems was highlighted in three respects: regional forecasting for the Caribbean, local meteorological forecasting, and early warning systems for floods for the agriculture sector. While weather information and modelling have improved tremendously in past years, forecasting for small island states remains a major challenge. Regional and national weather forecasting needs to improve by focusing on the impact of specific weather forecasts rather than generalised forecasts.<sup>128</sup>

<sup>126</sup> "Standards for Disaster Risk Reduction 2015", UNECE, Available at:

[https://www.unece.org/fileadmin/DAM/trade/Publications/ECE\\_TRADE\\_424\\_Standards\\_and\\_DRR.pdf](https://www.unece.org/fileadmin/DAM/trade/Publications/ECE_TRADE_424_Standards_and_DRR.pdf)

<sup>127</sup> "Business continuity - ISO 22301 when things go seriously wrong", Stefan Tangen and Dave Austin, 18 June 2012, ISO website. Available at: <https://www.iso.org/news/2012/06/Ref1602.html>

<sup>128</sup> "Dominica Lessons Learned from Tropical Storm Erika", October 2017, Assessment Capacities Project (ACAPS),

[https://www.acaps.org/sites/acaps/files/products/files/20171024\\_acaps\\_dominica\\_lessons\\_learned\\_tropical\\_storm\\_erika.pdf](https://www.acaps.org/sites/acaps/files/products/files/20171024_acaps_dominica_lessons_learned_tropical_storm_erika.pdf)

4.50. Sargassum Institute highlighted the economic value of the services they offer to the region. One example given was the Tourism-Climatic Bulletin. This bulletin is an operational tool jointly developed and disseminated by the Caribbean Tourism Organization, the Caribbean Hotel and Tourism Association and the CIMH. The provides a broad overview of climate conditions (how wet, how dry, how hot etc.) in the Caribbean and source markets (in North America and Europe) and communicates implications for the tourism sector three months in advance. Use of this tailored climate early information can inform strategic and operational decisions related to the use of environmental resources, marketing, and enhancement of the visitor experience. For example, weather predictions for key tourist source markets can be used to target advertising and marketing expenditure.

4.51. The CIMH is also involved in a number of development projects in the region, working with various funding agencies. Examples include the EU funded Caribbean Agrometeorological Initiative to increase and sustain agricultural productivity at the farm level in the Caribbean region through improved dissemination and application of weather and climate information. Another project in which CIMH is engaged is in a Japan-funded Real-Time Flood Forecasting Project that couples a physically based hydrological model capable of capturing changes in watershed characteristics to a numerical weather prediction model. The project aims to get around the short time lag between precipitation events and the onset of project led by McGill University's Brace Center for Water Resources Management to address the complex challenges of water management.<sup>129</sup>

4.52. Another area CIMH mentioned was in respect of prediction of Sargassum seaweed blooms. Since 2011, rafts of Sargassum, a brown seaweed that lives in the open ocean, have washed up on beaches across the Caribbean. The seaweed rafts have negatively impacted on fisheries (e.g. trapping sea turtles) and tourism (blocking beaches and emitting unpleasant odours). Satellite imagery is key to tracing the currents and weather patterns driving the Sargassum across the Atlantic and toward the Caribbean.<sup>130</sup>

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<sup>129</sup> Caribbean Institute for Meteorology and Hydrology website, <http://rcc.cimh.edu.bb/>

<sup>130</sup> "Mysterious masses of seaweed assault Caribbean islands 11 June 2018, Katie Langin, Science Magazine. Available at: <http://www.sciencemag.org/news/2018/06/mysterious-masses-seaweed-assault-caribbean-islands>

## Appendix 1: List of organizations and persons consulted

### Dominica

The following persons and organizations were consulted:

#### 27 August 2018

- Parry B. Bellot, Managing Director, Parbel Enterprises
- Kimone George, Proprietor/Partner, Island Safety Supply
- Kenneth Brunex
- Curtis Gordon
- Frances Hamillon
- Beruard Ellenolfe
- Nakima Royer Jno Baptiste, Chief Executive Officer, Digicel (Dominica) Limited
- Bertilia McKenzie, General Manager, Dominica Electricity Services Ltd. (DOMLEC)
- Kevin Hagen, Project Manager, EWB
- Priiscilla Bannis, Board Member
- Kertist Acqustus, Secretary Treasurer
- Paul Bara, Financial Adviser
- Hathehaon J. Waceer
- Norman Rolle, Managing Director

#### 28 August 2018

- Severin McKenzie -Nature Island Paper Products
- Nakima Royer Jno Baptiste, Chief Executive Officer, Digicel (Dominica) Limited
- Riviere D. Sebastian, Chief Fisheries Officer, Fisheries Division, Ministry of Agriculture and Fisheries
- Marvlyn Alexander James - Fort Young Hotel
- Deles Warrington, Farmer, Calibishie
- Jacqueline Douglas, Farmer/Hotelier, Hampstead
- Simpson Gregoire, Manager, Campbell's Business Systems
- Yves Joseph - Macousherie Estates (Distillers)

### Saint Lucia

A programme of consultations was organized by the Ministry of Commerce, Industry, Investment, Enterprise Development and Consumer Affairs . The following persons and organizations were consulted:

#### 29 August 2018

- Benjamin Emmanuel, Cabinet Secretary
- Maria Medard, Deputy Director (Ag.), National Emergency Management Organization (NEMO)
- Velda Joseph, National Emergency Management Organization
- Sophia Emmanuel, Budget Office
- Jhea Hyancnil, Budget Office
- Mathurin- fiscal
- Nadine Isidore, Economist, Department of Economic Development
- Theruina Andreial, Economist, Research and Policy
- Barry Innocent - Deputy Director Agriculture
- Cletus Thomas- Customs and Excise
- Christopher Roberts, Project Coordinator, Caribbean Regional Communications Infrastructure Program
- Keats Compton, President, Marine Industries Association of St. Lucia
- Leo Titus Preville, Permanent Secretary, International Trade, Investment, Enterprise Development and Consumer Affairs, Department of Commerce.
- Hon. Ian Douglas, Minister of Trade, Energy and Employment

#### 30 August 2018

- Albert Sandy, Permanent Secretary, Caribbean Customs Law Enforcement Council

- Brian Lowsy,
- Goerge Hecee, Agricultural Specialist, OECS Commission.
- Virginia Paul, Head Trade Policy Unit, Economic Affairs Regional Integration Division, Organisation of Eastern Caribbean States
- Allan Paul, Regional Trade Advisor, OECS Hub
- Joan John-Norville, Environment Sustainability Cluster, OECS
- Voronica Mufudza, Trade Advisor, OECS Commission

### **Barbados**

A series of meetings were held with the following persons from regional organizations:

#### **1 September 2018**

- Dr. Justin A. Ram, Director, Economics, Caribbean Development Bank;
- Malcolm Spence, Senior Coordinator, Intellectual Property, Science and Technology Issues and Dr. Chantal Ononaiwu, Caricom Secretariat;
- Dominica Ronald Jackson, Executive Director, Caribbean Disaster Emergency Management Agency;
- Ryan Skeete, Director, Research, Charlene Drake, Executive Coordinator, Office of the Secretary-General, Amand Charles, Sustainable Tourism Development Specialist, Caribbean Tourism Organization;
- Kathy Ann Caesar and Dr. Cédric Van Meerbeeck. Caribbean Institute for Hydrology and Meteorology