



From early recovery to long-term
resilience in the Caribbean

Hurricanes Irma and Maria: One year on



UNDP Summary Report



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CONTEXT



1

The 2017 Atlantic hurricane season will forever be remembered by the Small Island Developing States (SIDS) of the northern and eastern Caribbean.

During that season, of the 13 named tropical storms, two catastrophic Category 5 hurricanes – Irma and Maria – made landfall, and caused havoc and devastation in Antigua and Barbuda, Dominica, Anguilla, the British Virgin Islands (BVI), Sint Maarten, the Bahamas, Saint Barthelemy, and the Turks and Caicos Islands from September 6-19. They also impacted the south-eastern islands of the Bahamas, St. Kitts and Nevis, and the northern border of Haiti.

Hurricane Irma, the ninth named hurricane of the 2017 Atlantic hurricane season and the most powerful on record, with maximum winds of approximately 185 miles per hour (mph), made a direct hit on the island of Barbuda on 6 September. In its aftermath, 95 percent of the houses in Barbuda were damaged or destroyed. Barbuda was deemed uninhabitable, and the entire population of 1,600 persons was evacuated to the main island of Antigua.

In BVI, where recovery from the extreme floods of 7 August 2017 was still under way, Irma caused widespread damage to the housing stock, road infrastructure, ports, telecommunications, electrical infrastructure and critical facilities. Key sector infrastructure and assets, such as for tourism – the driver of the BVI economy – were significantly impacted. Every resident of BVI was affected, four lives were lost,

and 125 people were injured in the devastation. Subsequently, on 18 September, Hurricane Maria made landfall on Dominica and affected BVI the following day. The entire population of Dominica – approximately 73,000 people – was directly affected by Hurricane Maria. More than 90 percent of all roofs were damaged or destroyed. Critical power and water supplies were disrupted, and entire crops destroyed.

Hurricanes Irma and Maria resulted in the deaths of at least 37 people. Thousands were made homeless, and key infrastructure for transportation, water, health, tourism, and education were devastated. Between 70 and 95 percent of houses were damaged in Anguilla, the Bahamas, the Turks and Caicos Islands, BVI, Barbuda and Dominica. The anomaly of two catastrophic hurricanes in close succession, combined with successive storm events, surpassed

the coping strategies of the affected States.

The impacts of these disasters in the Small Island Developing Countries (SIDS) context had a multiplier effect. The geographic size, small populations, dependent economies and fragile and intricate connections between ecosystems and livelihoods, had immense implications for the sustainability of these nations.

When a catastrophic disaster strikes in a SIDS – unlike other developing country contexts – the entire population and economy is usually affected. This was the experience of Dominica, BVI and Barbuda. The costs of these disasters are estimated to have exceeded the national gross domestic product (GDP) for Dominica and BVI. Based on the Post-Disaster Needs Assessment (PDNA) for Dominica, the identified recovery needs for reconstruction and resilience interventions – incorporating the principle of ‘building back better’ (BBB) where possible – amount to \$1.37 billion. In Antigua and Barbuda, recovery needs amount to \$222 million, primarily for Barbuda. BVI estimates that \$721 million is

needed to implement its Recovery and Development Plan.

UNDP responded immediately to a call from the Caribbean Community Secretariat (CARICOM) to provide policy and technical support to organize a CARICOM-UN High-Level Pledging Conference with the purpose of mobilizing financial and technical support for the affected countries and territories. The support UNDP provided to this largely non-official development assistance (ODA)-eligible region resulted in \$1.6 billion in grant pledges being made at the November 2018 conference.

In response to requests from affected States, UNDP provided timely and effective recovery support. UNDP has mobilized over \$25 million to contribute to national recovery interventions in affected States. This report highlights the work that the UNDP Sub-regional Office for Barbados and the OECS has done in Antigua and Barbuda, Dominica and BVI and the work the Multi-Country Office for Trinidad and Tobago, Surinam, Aruba, Curacao and Sint Maarten has delivered in the latter island.

UNDP response in the Caribbean: a corporate effort

Hurricanes Irma and Maria became a corporate priority for UNDP even before their landfall. Preparedness plans were activated and senior leadership of all different parts of the organization worked together to identify needs rapidly and define the appropriate course of action. The Crisis Response Unit (CRU) immediately activated its response mechanisms, assisting with the deployment of first responders and SURGE experts together with catalytic funding that enabled UNDP to establish solid teams in multiple islands simultaneously. Additionally, the Bureau for Programme and Policy Support (BPPS) made available sectoral experts in different fields and financial resources for programmatic interventions on recovery, resilience and climate change adaptation that are facilitating the transition from early recovery to long term resilience. The Bureau for External Relations and Advocacy (BERA) and the Bureau for Management Support (BMS) also played an important role throughout the process, in collaboration with the Regional Bureau for Latin America and the Caribbean and its regional hub.



Consistent with the emphasis of its new Strategic Plan, UNDP served as a connector and convenor, helping to catalyse and mobilize financial resources and top notch expertise from around the world. In this regard, UNDP supported the High-Level Pledging Conference, to follow up on behalf of the region with donors, and developed a regional approach to resilience. This new approach is an effort to support the region in its vision of addressing underlying vulnerabilities and transitioning to become the world's first climate-resilient region.

In Dominica damages, i.e. destroyed physical assets, totalled \$930.9 million, while losses amounted to approximately \$380.2 million – the equivalent of 226 percent of the 2016 GDP. In the case of Antigua and Barbuda and BVI, damages and losses amount to \$155 million and \$2.6 billion respectively. The tourism, agriculture and the housing sectors were significantly affected in all countries. In the BVI, damages and losses in the tourism sector alone are estimated to be \$1.2 billion.

United Nations: working together on recovery

In order to promote the exponential impact of recovery interventions across sectors, UNDP has been partnering with multiple stockholders present in the Caribbean, placing particular relevance on collaborations with other United Nations agencies, funds and programmes. The long-term UNDP presence in Dominica has served to strengthen partnerships with organizations such as OCHA, with the establishment of the Crisis Management Unit immediately after the disaster; with WFP, to address logistical challenges; with IOM, on roofing repairs; and with UNICEF, for the retrofitting of two educational buildings in Dominica. In Antigua and Barbuda, technical assistance from PAHO experts is central to ensuring adequate rehabilitation of the Hanna Thomas Hospital. UNDP partnerships with relevant organizations have been critical to the success of the interventions, and further collaboration is being explored in the context of the UNDP resilience programme in the region.

OVERVIEW OF KEY UNDP CONTRIBUTIONS TO NATIONAL EFFORTS



2

Dominica



Guidelines to the Housing Standards developed, disseminated and implemented for long-term resilience building.

Recovery strategies and partnerships strengthened for long term engagement for risk informed development:

- Crisis Management Unit (CMU) and UNDP Dominica Project Office set up.
- Post Disaster Needs Assessment (PDNA) completed.
- Physical Planning Division supported in the review of approval processes.
- Development of the recovery agency- CREAD supported.

A comprehensive Building Damage Assessment (BDA) of 29,431 structures completed by Ministry of Housing for recovery planning purposes; webmap of BDA and reroofed buildings developed.

488 buildings restored for the most vulnerable (over 350,000 sq ft): 472 homes; 3 schools, 5 health care centres; and government buildings- including the the Princess Margaret Hospital; and the

main tertiary education institution- Dominica State College.

Effective partnerships established and managed with 9 organizations for roof installation: Engineers Without Borders; Ministry of Health Project Management Unit (PMH), Americares, IOM, IFRC, IsraAid, Caritas, Emergency Architects, All Hands and Hearts.

Capacity built in ‘Building Back Better’; (BBB)- 350 contractors trained in BBB techniques.

Debris sorted and essential roads, schools and tourism sites cleared in cooperation with key partners (National Employment Programme and Dominica Solid Waste Management Corporation); healthy and safe living conditions in targeted areas for more than 5000 beneficiaries.

Gender balanced emergency employment provided for over 400 persons (42% women) in 18 communities from 150 households. Personal Protective Equipment procured and US\$659,855 transferred for wages.

Antigua and Barbuda



Recovery strategies strengthened to assess, plan, implement, and coordinate recovery - PDNA completed.

Comprehensive BDA completed for 100% of buildings and structures.

Quality assurance and technical support provided for BBB in construction techniques.

272 roofs installed for the most vulnerable through effective partnerships with NODS, local contractors, NGOs such as Samaritan's purse and other partners such as the Regional Security System (RSS) and the Antigua and Barbuda Defense Force.

Roofing material provided and valued at \$1,817,490 to rebuild homes and essential institutions, including the Hanna Thomas Hospital and the Sir McChesney

George Secondary School.

Logistics provided for procurement, movement and distribution of high-quality roofing material for 302 buildings.

Capacity built in resilient construction BBB - 395 contractors, inspectors, architects and other technical construction professionals trained in BBB principles.

3,000 tonnes of disaster and construction debris removed through key partnerships.

Gender-balanced emergency employment provided for 28 beneficiaries (19 women, 9 men) in cooperation with the Marine Ecosystem Protected Area (MEPA) Trust

British Virgin Islands



National capacities strengthened for participatory recovery planning and development of key institutions for transparent and efficient implementation of resilient recovery efforts for long-term sustainable development:

- The Recovery to Development Plan of the Virgin Islands prepared with public and stakeholder inputs;
- The Six-month Accelerator Plan for recovery developed;
- The Housing Recovery Policy prepared;
- Post-Irma Housing Recovery Plan developed;
- The BVI Recovery and Development Agency (RDA) established.

Building capacity and providing project management, procurement and strategic sourcing support, financial management and other technical expertise to the BVI Ministry of Finance in the implementa-

tion of a US\$ 65.29M Caribbean Development Bank (CDB) Rehabilitation and Reconstruction loan.

Supporting delivery of social and economic infrastructure works; engineering services; institutional strengthening; equipment, tools and material of education institutions, and enhanced preparedness and response capacities.

- 12 tenders prepared and launched for consultancy services valued at US\$6,051,000 to support Infrastructure Works projects.
- 3 tenders prepared for the procurement of goods valued at US\$2,045,000.

Gender balanced, employment provided through effective partnerships. Personal Protective Equipment and training provided.

Debris collected, sorted, and recycled through key partnerships.

Sint Maarten



Build Back Better methodology developed and adopted for more resilient roof-construction against hurricanes. As of 1 April, 2018 a fully-fledged model for “Building Back Better” in the housing sector was developed, based on international standards, and is being adopted by the Government of Sint Maarten. Twenty eight roofs repaired for the most vulnerable through solid partnerships with the Government of Sint Maarten, local contractors, local NGOs and the Dutch Government. An additional 47 roofs are being assessed for completion by the end of 2018.

15,660 m² of debris removed from 80 private sites and seven public areas in collaboration with strategic partners such as the Government and NGOs like Nature Foundation and Kidz at Sea. Public areas cleared include major beaches, two cemeteries, water ponds and other relevant community infrastructure.

204 jobs provided through an Emergency Employment Programme ‘Cash-for-Work’ that helped sustaining livelihoods in time of need. Forty percent of the beneficiaries were females.

Disaster Management and Risk Evaluation completed. Recommendations and significant lessons learnt from the response to Hurricane Irma identified for the improved management of emergencies and disasters in Sint Maarten. Awareness, community development and telecommunications identified as main areas to improve existing disaster management plans.

UNDP STRATEGY



3

With development as its core mandate, UNDP engaged in recovery specifically to support governments, national institutions and affected communities in getting back on the path of sustainable development and strengthening their resilience to multiple shocks.

A resilience approach was at the crux of the UNDP recovery strategy and assistance offer. In that regard, the aim of the UNDP strategy was:

*To provide comprehensive support to address the **immediate and long-term recovery** needs of individuals, households and communities affected by the Hurricanes Irma and Maria while enhancing **capacities within the Government and communities to manage risks posed by natural disasters and climate change.***

Recognizing the vital importance of galvanizing regional support and working closely with regional institutions, UNDP, at the request of CARICOM, placed a Senior Resilience Advisor to comple-

ment its efforts to advance regional resilience. A necessary first step is to enhance the structural and organizational capacities for recovery. In that regard, UNDP has supported the development of a Resilient Caribbean Recovery Facility within an existing regional institution. This has been accepted and endorsed by CARICOM, and UNDP is providing policy and technical support to develop a fully-fledged proposal to present to donors, once again acting in a catalytic manner and using its convening capacities in line with the vision of the Strategic Plan.

For real transformation to take place, business must play an increasingly important role, and given the crippling debt burdens of a region largely comprised of middle- to high-income countries, innovative financing and approaches to development are vital. In this context, UNDP has started support-

ing regional institutions and countries such as Grenada in advancing the Blue Economy. Additionally, it is vital that new insurance products are developed to expand coverage of households and natural assets. UNDP has commenced policy and technical support in this area which is expected to accelerate over the next 12 months.

The disasters of 2017 provided a clear illustration of the importance of having a repository of best practices; an easily accessible and relevant quality-assured experts' roster; and a knowledge network of well-connected and interacting practitioners from within and outside the region. UNDP is committed to supporting the regional institutions in strengthening their capacities to leverage knowledge to recover, respond and build resilience.

From Early Recovery to Long Term Resilience

It was necessary to take a long-term approach in parallel to addressing immediate needs because deep-seated issues of resilience needed to be addressed.

The 2017 hurricane season highlighted gaps in the overall disaster preparedness, risk reduction and resilience levels of the Caribbean region. Common challenges identified were mostly related to recovery mechanisms and structures, existing capacities and limited resources available.



Supporting national leadership

All progress has only been possible thanks to the leadership of the Governments and the people of Dominica, Antigua and Barbuda and the British Virgin Islands (BVI).

UNDP has been pleased to partner with national authorities and affected communities to deliver recovery results and promote long-term resilience. Institutions such as the Ministry of Housing, Lands and Water Resource Management in Dominica has been coordinating housing repairs since the aftermath of the disaster, first leading the country-wide building damage assessment (BDA) and then promoting the revision, reinforcement and use of enhanced building codes. In Antigua and Barbuda, the Government's National Office for Disaster Services (NODS) led the coordination of recovery interventions after Irma, facilitating the work of different partners. None of

the UNDP contributions in Barbuda would have been possible without the support of NODS and the Barbuda Council. In the BVI, UNDP is pleased to work closely with the Ministry of Finance to strengthen national capacities to implement a \$65.29 million Caribbean Development Bank rehabilitation and reconstruction loan. In Sint Maarten, UNDP partners with the Ministry of Housing (VROMI) with the active support of the Dutch Ministry of the Interior and Kingdom Affairs, given the special constitutional arrangements and assistance to the island within the Kingdom of The Netherlands.

At the regional level, the role of intergovernmental institutions such as the CARICOM, the Caribbean Disaster Emergency Management Agency (CDEMA) and the OECS has been instrumental.





There was limited integration of climate and risk reduction measures into policies, and only partial implementation of risk reduction measures. In many instances, the application of building codes was inconsistent, and land use planning was often not informed by risk assessments.

Pockets of the vulnerable population – comprising poor people, migrants and undocumented persons – were underserved. A lack of access to concessional financing and high ratios of government debt to GDP meant that impacted countries did not have the appropriate fiscal reserves to invest in recovery and ‘build back better’ (BBB).

Early recovery interventions can provide an opportunity to work towards long-term engagement to address the fundamental drivers of vulnerabilities. UNDP engaged rapidly on the ground and invested core resources to ensure long-term presence as a relevant partner for the long term. Further, since the frequency and intensity of hurricanes are expected to increase in the face of a changing climate, building resilience to these events was at the centre of the UNDP post-hurricane recovery strategy.

UNDP promoted this resilience recovery strategy through three distinct strands (Figure 1). The first aspect was to provide advisory services at the

national level. Second, UNDP helped communities ‘build back better’ through support to resilient housing. Finally, UNDP improved capacities for disaster preparedness and recovery at the national, subnational and community and individual levels. All UNDP interventions were gender-balanced and promoted equitable access to resources for recovery. At the regional level, UNDP has worked closely with institutions such as CARICOM, the CDEMA and the CDB to identify priorities.

Figure 1

The UNDP three-strand approach to recovery



A JOINT EFFORT OF RECOVERY PARTNERS



4



Collaboration and joint financing with multiple recovery partners have been one of the strengths the UNDP approach. The Regional Recovery Plan for the Caribbean Post Hurricane Irma and Maria has been a joint effort of UNDP and its Country Offices in Barbados and the OECS, Trinidad and Tobago, and Jamaica together with recovery champions such as China Aid, European Union, The Netherlands, India, Japan, The Caribbean Development Bank, World Bank, UK Department for International Development (DFID), New Zealand, Kuwait, Denmark, Romania, OCHA-CERF and other partners. Thus far, through the support of several donors, UNDP has mobilised \$25 million to assist ongoing efforts in hurricane affected Caribbean States. See Table 1 (Next page).

Strategic recovery partners

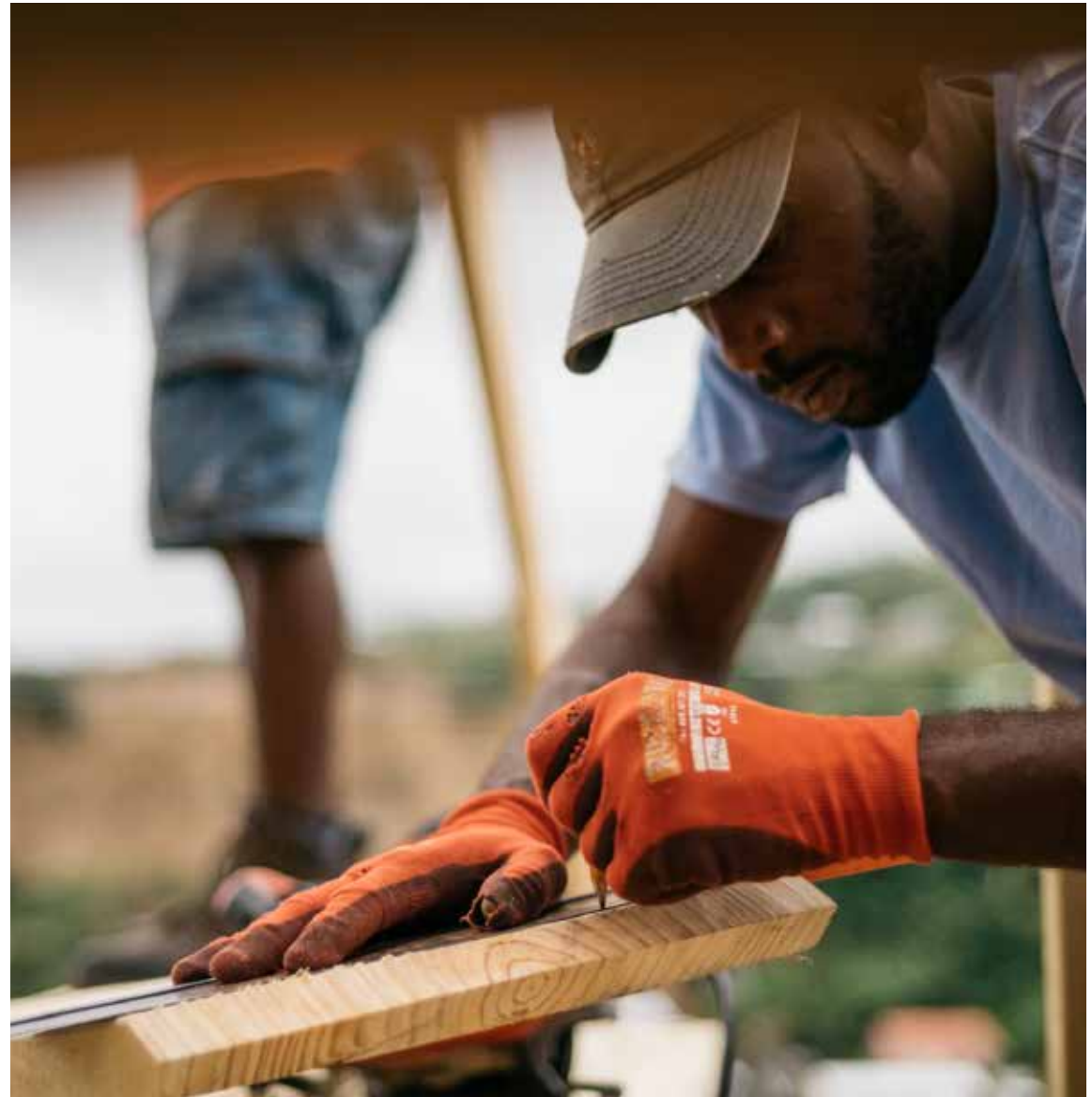
The governments of New Zealand, The Netherlands and the State of Kuwait, together with the People's Republic of China and India, were among the first to express their solidarity with the impacted countries and make an effective contribution to UNDP during the first days after the hurricanes. This support in the early days was catalytic to enabling the rapid deployment of experts, gathering initial data, providing technical assistance to national partners, and conducting strategic investments and essential programmatic interventions. UNDP is proud to have gained the trust of such partners, whose generous contributions have made a difference for the impacted countries and their people.

Table 1

Funding sources for UNDP Caribbean Recovery Programmes

Geographical focus	Recovery partner										TOTAL
	China	Kingdom of the Netherlands	Japan	India	Caribbean Development Bank	New Zealand, Kuwait, Denmark, Romania	CERF	World Bank, DFID, ECHO, Private donations	EU	UNDP	
Antigua and Barbuda	2,000,000			1,000,000			65,891		5,700,000	310,000	9.1 M
British Virgin Islands					1,242,517		65,911			310,000	1.62 M
Dominica	3,000,000		2,700,000	1,000,000			300,007	890,000		535,000	8.43 M
Sint Maarten		2,750,000					148,568			310,000	3.21 M
Turks and Caicos							80,424			310,000	0.39 M
Regional response						1,000,000				1,570,000	2.58 M
TOTAL (by Donor)	5.0M	2.75M	2.7 M	2.0 M	1.24 M	1.0 M	0.66M	0.89 M	5.7 M	3.35 M	25.3 M

Building Back Better (BBB) supports specific global priority actions as outlined in Priority 4 of the Sendai Framework for Disaster Risk Reduction, ‘Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction’. Additionally, BBB, is a priority for action according to Goal 1 and Goal 9 of the 2030 Agenda for Sustainable Development. Goal 1, target 1.5, seeks to ‘build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters’. Goal 9 is to ‘Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation’.



AN OVERVIEW OF THE RESULTS



5



In accordance with needs identified and in line with the UNDP strategy, under the leadership of national Governments in affected States, and partners, UNDP rolled out its recovery programme in BVI, Dominica, Sint Maarten and Barbuda. All four countries undertook post-disaster debris and waste management, emergency employment and livelihoods programmes, and participated in interventions for improved recovery systems. PDNAs were conducted and assistance to assessing, planning and implementing recovery was provided. In view of the devastation of the housing stock in Dominica and Antigua and

Barbuda, resilient housing repair programmes were implemented.

In BVI, UNDP supported the Government in establishing necessary institutions for recovery such as the Recovery and Development Agency (RDA). UNDP provides project management, procurement, fiduciary and other technical expertise to facilitate the efficient implementation of the CDB-funded Rehabilitation and Reconstruction Loan. The loan is financing the rehabilitation and reconstruction of critical social and economic infrastructure, such as roads, water and sewerage, docks, schools and other public buildings.

In the case of Dominica, in conjunction with the Department for International Development (DFID), UNDP supported the establishment of a stand-alone recovery institution – Climate Resilient Execution Agency for Dominica (CREAD) – and is providing advisory services for the establishment of the Transition Team. Drawing on its extensive experience in recovery across the globe, UNDP has provided technical assistance for the execution of key recovery interventions in debris and waste management; post disaster needs assessment; recovery frameworks; BBB techniques, and project management.

China: from roofs to long-term resilience

Notwithstanding the distance between the nations, the People's Republic of China (PRC) was one of the first countries to come forward with a generous and unconditional contribution. Through their Ministry of Commerce (MOFCOM), PRC provided a \$5 million grant for the United Nations Development Programme (UNDP) to assist communities with roof restoration projects in Dominica and Barbuda, the two hardest-hit Caribbean islands. China Aid's grant was approved only days after the disaster and, in nine months of implementation, it has served for the restoration of over 800 roofs and provided safe housing for thousands of people in Dominica and Barbuda. The project also assisted national authorities to revise building codes,

train contractors and provide technical assistance on housing repairs. According to Ambassador of PRC to Antigua and Barbuda, H.E. Wang Xianmin, *"UNDP has coordinated a new trilateral model for South-South cooperation with outstanding results that should be replicated in other countries"*.





The Power of Data: using pioneer technology for disaster assessments and recovery planning.

It is interesting to see, in the social media and technological era we inhabit, that the most-used tools for disaster assessments are still paper and pencils. With luck, and several months later, the understandable part of those handwritten questionnaires is converted into some sort of file that – very rarely – is put together and analysed in time to inform recovery programmes. Accurate data is often scarce in normal socio-economic contexts; when a disaster strikes, reliable information is often as insufficient as it is important. Dominica and Barbuda, two small islands in the Caribbean hit by Category 5 hurricanes, have made a difference that could be the beginning of a revolution in disaster recovery. Governments from both countries, with the support of UNDP, in partnership with Microsoft and with technical assistance from Engineers Without Borders, have conducted comprehensive building damage assessments using new technologies. Millions of georeferenced

data fields – including photos of the structures and household information – have been gathered by teams of engineers and trained inspectors. Information is assembled, filtered and analysed in real time and is immediately made available online. This methodology and the use of innovative technologies allow inspection teams to assess a building in seven minutes, on average. All the structures in Barbuda were assessed in five days, while in Dominica 30 teams worked for three months to inspect almost 30,000 structures spread out over the entire country. Building upon lessons learned from the use of this pioneer tool, UNDP is now working on phase two to develop a corporate toolkit that will be available to any country in the world, so that a flexible questionnaire can be downloaded to any device, data can be securely stored, and information can be analysed immediately providing real-time reports and analytics for evidence-based decision-making in recovery processes.



RESULTS BY COUNTRY



6

Dominica

1. Recovery strategies for national/local government and strengthened partnership for long-term engagement for risk-informed development

Crisis Management Unit (CMU)

Prior to Hurricane Maria, Dominica was served through UNDP Barbados and the OECS Multi-Country Office (MCO). One week after the disaster, UNDP established long-term presence on the ground. Upon the request of the Secretary-General, UNDP and OCHA co-led the Crisis Management Unit (CMU) that was set up in the aftermath of the disaster. The UNDP focus was initially on supporting the CMU in planning and coordinating relief and recovery efforts. Once the emergency relief phase ended, at the end of December 2017, the Government of the Commonwealth of

Dominica requested that UNDP be the focal point for the coordination of the overall recovery efforts of international partners.

Post-Disaster Needs Assessment completed

The PDNA was the first step towards developing a holistic recovery programme that promoted equity and inclusion. UNDP facilitated the implementation of the PDNA for Dominica in collaboration with other United Nations organizations, the WB, the European Union, the CDB, the OECS, and the Eastern Caribbean Central Bank. The PDNA provided a comprehensive assessment of the damages and losses and identified the needs of the affected population in Dominica.

Establishment of the Climate Resilience Execution Agency for Dominica

UNDP initially supported the establishment of the Climate Resilience Execution Agency for Dominica (CREAD) by facilitating the formation of the Transition Team. Under the leadership of the Government of Dominica, and with the support from DFID, UNDP is equipping the CREAD structure with staff and facilitation operations as necessary. The Team Leader for the Transition Team was hired in June 2018.

2. Comprehensive building damage assessment and resilient housing repair

Building damage assessment completed

UNDP supported the Ministry of Housing in carrying out a country-wide, comprehensive building damage assessment (BDA) from November 2017 to January 2018 to understand the scope and level of damage to buildings. The information collected was analysed and provided the Government of Dominica and international partners with a baseline information for reconstruction planning and evidence-based decision-making processes. Twenty-nine thousand, four-hundred and thirty-one buildings were assessed – 25,477 houses, 2,916 commercial buildings, 840 public buildings, and

195 other buildings. The tool provided over one million geo-referenced data fields with pictures of the vast majority of the structures in the island. Over 140 assessors, mainly public servants – including volunteers and students – were involved in conducting the structural census. UNDP, in partnership with Engineers Without Borders (EWB), provided training in the assessment process, tablets with applications for capturing data, and logistics for both collecting and analyzing the data. Damage levels were identified according to four categories: red (destroyed), orange (roof totally damaged as well as walls), yellow (roof with more than 25 percent damage) and green (roof with less than 25 percent damage). Forty-four percent of the buildings in Dominica were destroyed or severely damaged. The data collected were validated using a rigorous quality assurance and control pro-

cess. As part of the transfer of BDA capacity to the Government, officers from the Physical Planning Division of the Ministry of Planning worked with the UNDP team to support data analysis.

Capacity-building/training of contractors and construction professionals in resilient reconstruction and Building Code revision achieved

Through the UNDP partnership with EWB, institutions and communities in Dominica were provided with valuable and extensive expertise in a wide range of engineering fields from the early stages of the emergency phase. Capacity was built among construction professionals in resilient reconstruction, consistent with the Building Code, and a robust public outreach programme was implemented. The Ministry of

Planning was provided with expertise for a full and comprehensive revision of the Dominica Housing Standards and associated Guidelines. Furthermore, the Physical Planning Division received technical support in the review of approval processes, which has enabled reconstruction efforts. UNDP has supported international partners in determining solutions for reconstruction and capacity-building of teams, and has provided support to the implementation of Technical Advisory Centres.

The Housing Standards are being used by public and private stakeholders, and by the general population, as the reference document for housing in Dominica. The guidelines were promoted through a variety of different channels and social media.

The Building Guidelines are available online at the website of the Ministry of Planning. They are downloadable from

major social media, as well as local news web pages such as Dominica News Online. To date, over 2000 hard copies of the guidelines have been made available at different locations; a Spanish language version was also produced.

Local contractors trained in BBB methods

Two types of training were successfully completed to facilitate housing reconstruction in Dominica. The first was comprehensive building damage assessment (BDA) training, followed by training of contractors and construction professionals in resilient reconstruction, consistent with the building code. Approximately 350 local contractors were trained on the new guidelines and building standards and certified in climate-resilient building practices. One thousand five hundred people

participated in the numerous trainings and events organized by the project throughout the whole territory of the island.

Resilient reconstruction

UNDP has provided safe housing for the most vulnerable and has restored essential critical infrastructure. With financing from the People's Republic of China, UNDP procured roofing materials to support the restoration of buildings. Tools and basic equipment were also distributed. UNDP managed difficulties with definition and acquisition of material in the volume and to the standards required, and, despite the challenging post-disaster scenario, managed the logistics from the arrival to handling and distribution of material for roof restoration. As a result, and under the leadership of the Government of the Commonwealth of Domini-

ca, 488 roofs were installed: homes (472), schools (three – Paix Bouche School, Penville Pre-school and Bense Pre-school), health centres (five) and government buildings – notably four buildings at the Dominica State College, the main tertiary education facility on the island, and four buildings at the Princess Margaret Hospital. UNDP also produced a web-based interactive map where all the houses that have been re-roofed under the Government of the Commonwealth of Dominica-China partnership are displayed together with relevant metadata. Additionally, as part of the Housing Recovery Coordination Group, which was led by the Ministry of Housing, UNDP contributed to the development of vulnerability criteria. The application of vulnerability criteria ensured that the beneficiary selection process was transparent and consistent around the country and targeted those most in need.

Working together with key partners

In its role as focal point for the overall recovery efforts of international partners, UNDP paid special attention to partnership creation and management. UNDP identified partnership opportunities, and developed and managed effective inter-institutional agreements with eight organizations for the installation of 488 roofs, under the leadership of the Government of the Commonwealth of Dominica. UNDP partnered with the Ministry of Health Project Management Unit (PMH), Americares, IOM, IFRC, IsraAid, Caritas, Emergency Architects, All Hands and Hearts. The reroofing of the Dominica State College is a particularly successful example of partnership management. Thanks to the South-South cooperation effort put in place by the Government of the Commonwealth of Dominica, the People's Republic of China, Cuba, and the Bolivarian Republic of Venezuela, a delegation of 80 experienced Cuban builders – including

four engineers – arrived in Dominica on 8 June 2018 and started re-roofing six buildings of the Dominica State College. The College is a complex structure with an estimated roof coverage of about 65,000 square feet, equivalent to approximately 130 average houses (the average house in Dominica is 500 square feet). UNDP and its partner EWB are providing continuous technical and logistics assistance to ensure that the work can be completed to the highest quality standards.

Following Maria and to implement recovery activities, a Project Office was formally established in Dominica in January 2018. The UNDP Project Office is staffed with two international officers as well as local staff and local and international consultants.

“

During my recent visit there [Dominica State College] I reiterated my commitment to sourcing the skilled workers and materials needed to restore the facilities and I want to thank the United Nations Development Programme (UNDP), Engineers Without Borders, and the governments of Cuba and the People’s Republic of China for their assistance in making this restoration process a reality.

Roosevelt Skerrit,
Prime minister of Dominica

”

Further reconstruction through financing from India

The work on resilient building repair is being extended through resources from the Government of India. Two buildings of the Salisbury Educational Facility will be fully retrofitted according to the highest construction standards. This will enable children to return to the campus and will help to increase the educational rate in the parish. Additionally, the contribution from the Government of India will allow the two buildings to be repaired in such a way that they can be used as community shelters in case of another disaster, with the capacity of serving a community of about 2,000 people. UNDP is collaborating with UNICEF and other partners for the repair and refurbishment of the two structures.

3. Debris managed in targeted areas

The debris management programme facilitated access to remote areas, including to farming areas and markets, and re-established healthy and safe living conditions in the target communities. It also provided employment for the vulnerable and affected population through the emergency employment/ cash-for-work programme (see above). Debris removed included bricks, cement, rubble and vegetation from the destroyed communities, marketplaces, schools, homes and streets. This paved the way to ensuring accessibility by humanitarian partners rebuilding those areas and, more importantly, allowed isolated communities to be reached. Because of the intersectoral coordination exercise conducted to prioritize sites for debris removal, 11 tourism sites were cleared; roadways and communities were beautified; and community spaces were cleared. Eight schools were also cleared – Grand Bay Primary, Grand Bay Secondary,

St. Luke's Primary, Delice Primary, Colihaut Primary, Soufriere Primary, Bense Primary and Dublanc Primary. Three essential feeder roads, as well as roads to water sources and popular pathways within the villages, were cleared, together with drains and culverts. Finally, the programme facilitated the sorting of white goods and galvanized roofing, and disposed of organic material in cooperation with the Dominica Solid Waste Management Corporation.

4. Emergency employment- cash-for-work programme

By strengthening the National Employment Programme (NEP) led by the Ministry of Trade, Energy and Employment, UNDP contributed to providing gender-balanced temporary employment opportunities for 405 people (42 percent of whom were women) in 18 communities. One hundred and fifty households benefited directly from the emergency employment programme, which

restored economic activity through debris and waste management. Through the programme, \$659,855 was transferred to beneficiaries. That income enabled workers to buy food for their families, access critical goods and services, and begin to repair their homes while they awaited reconstruction support and re-establishment of substantive economic activity. The programme enabled people to contribute to the cleaning and restoration of their own communities, transforming them from affected persons to actors for change.

The NEP of the Ministry of Trade, Energy and Employment has proved to have a solid management structure in place to implement this sort of emergency employment programme. In line with the BBB approach, this innovative partnership contributed to enhancing the ability and preparedness of the NEP to respond to future emergencies with a timely, effective and well-structured emergency employment programme. Activities were launched within two months of the disaster, in

the southern village of Pointe Michel, one of the hardest-hit communities and the area that reported the most deaths. Teams were deployed in the following communities:

- North: Portsmouth, Penville, Capuchin/Tan Tan
- West: Mero, Colihaut, Bioche/Dublanc, Layou, Wotten Waven
- North East: Calibishie, Bense, Kalinago Territory,
- South: Grandbay, Pichelin, La Plaine, Delice, Pointe Michel, Scottshead, Soufriere/Gallion

Through the programme, 30 NEP supervisors and selected village council members were trained in community clean-up work plan development. To facilitate clean-up activities, NEP and UNDP distributed wheelbarrows, shovels, rakes and cutlasses, as well as personal protective equipment including gloves, helmets, boots and safety vests, to the workers. It is estimated that 5,724 people have benefited directly from the debris removal and employment programme.





Jeanne Williams,
Hurricane Maria Survivor,
UNDP Beneficiary

Jeanne Williams is a Hurricane Maria survivor. The mother of two lives in the west coast community of Colihaut. She recalled her experience after the passage of the hurricane and how the Emergency Employment Programme helped her.

“Water, mud, everything was just in a mess and I couldn’t believe what I saw that morning. The river was just around the house until they came to try to dredge the river for the water to get away from the house.”

The Category 5 hurricane has now forced her and her family of four to live on the top floor of their house.

“Well, I’m living upstairs but at the same time, whenever it rains, I’m scared. I cannot sleep. I always go out on the verandah looking out for if the river is coming down. The kids wake up too and we are there. We still have fright of the river, but God knows best.”

Jeanne Williams,
Hurricane Maria Survivor,
UNDP Beneficiary

Since the storm, Jeanne has contributed to clearing efforts not only around her house, but in her community, through the National Employment Programme-managed Emergency Employment Programme and supported by UNDP through funds from ECHO, UKAid and CERF. *“I really wanted a job before entering the Emergency Employment Programme. I used to go on my own when I saw the river dirty, I used to go and clean the river just like that because I like to see things clean, the environment.”*

Due to her work ethic, Jeanne is now a Team Leader and leads a small group of workers in cleaning the surroundings in her community. *“We clear the surroundings, we help people who cannot do what they have to do, we clean the river and we do sweeping along the roadside. We all gathered galvanized roofing that needed to be removed in the village to down on the other side”.*

Jeanne says being in the programme has given her a sense of independence.

“To be working under UNDP, at the end of the month, when I get my salary I can buy whatever I want and that makes me develop myself to do whatever I want to do, and I am grateful and happy to be in this group.”

Jeanne is one of 405 people, 42 percent of whom are women, from 15 communities, who have been employed through the programme. Thirty NEP supervisors and targeted village council members have also received training in work plan development. UNDP has distributed personal protection and other equipment; including gloves, helmets, boots, wheelbarrows and shovels to the NEP to facilitate clean-up

Antigua and Barbuda

1. Contributions to post-disaster assessments for definition of evidence-based recovery strategies by national authorities

In support of strengthening national authorities with the capacity to assess the impact of the hurricane and plan for recovery, UNDP supported the PDNA that was conducted in collaboration with the EU, WB and other partners. UNDP assisted the institutions of Antigua and Barbuda in planning and implementing a comprehensive building damage assessment (BDA) of all of the buildings in the island. The BDA was conducted in one week, in November 2017, under the leadership of the National Office for Disaster Services (NODS) and in collaboration with

experts from different ministries. One thousand two hundred and ninety buildings were assessed and classified according to the level of damage: minimal (level 1), minor (level 2), major (level 3) and total (level 4). The outcome of the analysis was used to prioritize structures for repair or reconstruction. Beneficiaries are selected by a Project Beneficiary Selection Committee, whose members include NODS, the Ministry of Public Works, the Barbuda Council and the Development Control Agency (DCA), as well as Barbuda community-based organizations.

UNDP has established long-term presence and opened two offices: one in Antigua and another one in Barbuda.

2. Housing repair and reconstruction

Thanks to the support from the People's Republic of China, UNDP assisted with the procurement and distribution of \$1.9 million in construction materials and equipment that, after nine months of project implementation, resulted in the re-roofing of 272 buildings. UNDP exceeded its target of 250 houses by 30 June 2018. UNDP provided quality assurance and offered technical support to ensure that all roofs were installed according to national building standards. To that end, UNDP supported the Development Control Authority in its inspection of ongoing repairs according to standard building techniques, in line with the latest building code and according to BBB principles.

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“Thanks to the United Nations Development Programme and the People’s Republic of China, the project exceeded all targets and expectations - this is a model that can be replicated in other countries - providing significant help, and stronger resilience against future hurricanes”

**Prime minister of Antigua and Barbuda,
Gaston Browne**

”

Some of the financing from China was used to provide NODS with material for reroofing additional buildings. NODS distributed the material to local contractors working on housing repairs. Most of the buildings are residential and essential facilities. They include: the Hanna Thomas Hospital, the Nurses Hostel, the Palm Tree Guest House (utilized as interim residence for essential and prioritized public service staff), and the Sir McChesney George Secondary School. By the end of June 2018, 1,170 people had benefited from the contribution of the China Aid Roof Restoration Initiative. The purchase of high-quality roofing materials, and many other products and services sourced locally and within the region, have stimulated employment for builders and other sectors. This initiative has enabled the enforcement of building codes and the promotion of “build back better” techniques.

The UNDP Antigua and Barbuda Office worked with national institutions to manage the logistics involved in moving materials to Antigua and onwards to Barbuda, from the first port of reception to the port of departure of all Barbuda-bound cargos. This required complex coordination operations involving multiple entities. UNDP, in close collaboration and coordination with NODS, supported the distribution of materials, equipment and tools to selected contractors. The re-roofing intervention encountered several challenges during project implementation, which were surmounted by synergy and collaboration with multiple partners and continuous leadership of national Government.

Otine Beazer,
Fire Fighter Barbuda,
UNDP Beneficiary



Barbuda Fire Officer Otine Beazer was one of the key service staff able to return home and to his work, thanks to the repairs to his home.

“This is my home. The roof came off on this side and the other side, and at the back. Inside was destroyed. All my furniture was destroyed. So I had to take it out and dump it at the dump site. Before the storm, I was at work.

I took my family down to my grandparents’ house because they have a better house, a concrete top, not a galvanized top house. So I was making preparations. I came up to bar off my windows. Bar off my doors. This door actually blew off inside of the house. It was a lot of work to get this house back together. I want to say thanks to the UN for giving us the materials so we can get our home back together. It’s much stronger now. Looks much better. It’s done the right way now.”



The intervention has targeted the most vulnerable households. UNDP promoted the prioritization of women as well as other vulnerable groups in the targeting of beneficiaries, according to a pre-agreed set of eligibility criteria. One hundred and sixty-two women were direct beneficiaries of the project, many amongst whom were heads of household. The elderly, and important demographic group in the island, were also supported, as well as persons with disabilities. Thanks to the joint intervention with the Government of Antigua and Barbuda and affected communities, hundreds of people have been able to return home to Barbuda since the entire island was evacuated in September 2017, following the impact of the hurricane Irma.

Partnership

Through a productive partnership with the Government of Antigua and Barbuda, UNDP worked closely with NODS in engaging more than 20 Antiguan and Barbudan construction contractors. Partnerships were also formed with non-governmental organizations (NGOs) and other partners who bolstered the labour supply from NODS contractors. These included the international NGO Samaritan's Purse, which worked closely with UNDP during the entire implementation. For one month, skilled labour was provided by the Antigua and Barbuda Defence Force (ABDF), a military contingent from Jamaica and a military contingent from the Regional Security System (RSS) of Barbados.

In a pioneer model of collaboration, UNDP partnered with national and local

counterparts and contributed to the coordination of the recovery response through its role as Secretariat for the NODS Coordination of Irma Recovery. UNDP ensured strong partnerships and collaboration with international partners on the ground, which allowed for optimal complementarity of recovery efforts. The project has been highlighted as a successful new trilateral model for South-South cooperation: the People's Republic of China provided the funds for reroofing materials, tools, equipment, and technical assistance; the Government hired contractors and coordinated repairs; and UNDP facilitated the implementation of the project. UNDP ensured the complementarity of its recovery activities with other partner interventions to facilitate the full repair of targeted residential buildings, with a focus on the most vulnerable.

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On behalf of the people of Barbuda, we express our sincere thanks and appreciation for coming to the aid of Barbuda in such a way. This project speaks volumes once again to the commitment of the Government of Antigua and Barbuda to the people of Barbuda.

Councilwoman Ms. Mackeisha Desouza

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Capacity-building/training of contractors and construction professionals in resilient reconstruction

The capacity of national institutions and partners was strengthened through eight training sessions on the safe and adequate installation of roofs. Specifically, 395 contractors, inspectors, architects and other technical construction professionals were trained in building assessment techniques, BBB principles, compliance with building codes, and quantity estimation. Orientation sessions for 100 members of the community on BBB principles and building resilience to natural disasters have been convened. UNDP also provided high-quality construction tools to national building contractors, and increased the capacity of local stakeholders to build disaster resilience.

UNDP engaged in a capacity-building procurement fair (July 2018) that introduced 23 local entities (potential suppliers and vendors) to UNDP processes and standard operating procedures for procurement. As a result, knowledge and capacity were increased on how to successfully apply and compete for future published bids on recovery and reconstruction activities in Barbuda. This was an essential activity towards helping local firms to benefit from the planned recovery work.

3. Debris management

UNDP assisted national institutions with expertise on debris management. To that end, it facilitated the development of an environmental management plan outlining comprehensive debris management and safe disposal mechanisms for disaster waste in Barbuda in collaboration with NODS and the Barbudan Council. This early recovery initiative assisted to remove over 3,000 tonnes of disaster and construction debris from 281 residential sites, roadsides and bushland. Debris was managed and safely disposed of in the government-approved temporary dumping site. Capturing estimated quantities on recycling proved difficult due to the conditions under which sorting was carried out at the community level. Debris removal activities involved the partnership of other recovery partners, such as the Barbuda Recovery & Conservation Trust (BRCT).

4. Emergency employment/ cash-for-work programme

Thanks to the United Nations Central Emergency Response Fund (CERF), UNDP implemented an emergency employment/cash-for-work project through a targeted community mobilization exercise that benefited the Codrington community in Barbuda. A conscious and deliberate effort was made to include women and other vulnerable groups, including persons living with disabilities and persons with low income in the list of targeted beneficiaries.

UNDP partnered with the MEPA Trust to implement emergency employment and rubble management activities. Training was provided to workers in the use of small tools/equipment to ensure that the waste was safely handled and disposed of. In addition, training on First Aid Health and Safety was provided to

all beneficiaries, in collaboration with the Antigua and Barbuda Red Cross. Furthermore, community members were engaged through meetings with cash-for-work teams to discuss ideas, expectations and concerns before implementation. Because of these consultations, work was adjusted to ensure a more effective implementation. Weekly meetings created a bond among the emergency employment personnel and the MEPA Trust, and were used to monitor programme activities. This emergency employment project also served to sensitize the community on waste minimization and waste recycling.

British Virgin Islands

1. Recovery strategies strengthened and national authorities supported in planning, implementing, and coordinating recovery

Institutions built for transparent and efficient implementation of recovery efforts

In October 2017, in the aftermath of the three disasters, the Government of the Virgin Islands established a Disaster Recovery Coordination Committee (DRCC) to coordinate recovery planning. As a member of

this Committee, UNDP supported the DRCC Secretariat with the following:

- Preparation of the Preliminary Recovery and Development Plan, which was used for wider public and stakeholder consultations
- Facilitation of Territory-wide public and stakeholder consultations on the Preliminary Recovery and Development Plan
- Preparation of the Stakeholder Consultation Report, which captured the key recommendations from the consultation process
- Development of the Recovery and Development Plan of the Virgin Islands based on consul-

tations with the Ministries and inputs from the public and other stakeholders

- Preparation of a Six-month Accelerator Plan for recovery (currently being implemented by the Recovery and Development Agency)



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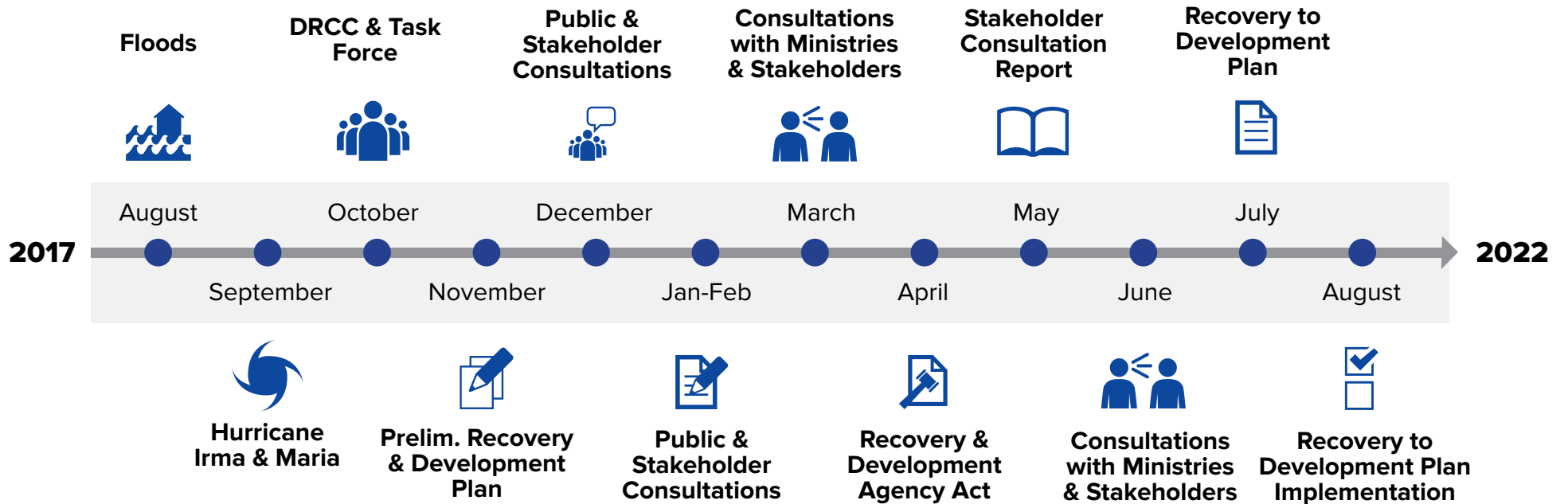
“This government is grateful for the assistance of organizations like the UNDP in helping the territory to build stronger, smarter, greener and better.

”

Premier and Minister of Finance, the Honourable Dr. D Orlando Smith, British Virgin Islands

Figure 2

Key milestones associated with UNDP support to BVI



Support to the participatory development of the BVI Recovery and Development Plan

The BVI Recovery and Development Plan was developed for the sustainable and resilient recovery of the Territory through a participatory approach, and leveraged the opportunity created by the disasters to link recovery to long-term sustainable development. The Plan envisions that: “... BVI will be a model for building stronger, smarter, greener and better, fostering a vibrant and innovative economy, cohesive and empowered society, nurtured and sustainable environment, resilient infrastructure, good governance and a high quality of life for all”. The Plan proposes projects, programmes and policy initiatives that seek to achieve five strategic outcomes, across five priority sectors of Human and Social Services, Business and Economy, In-

frastructure, Natural Resources and Climate Change, and Governance. The strategic outcomes are:

1. **Cohesive and empowered society:** Promoting healthy living, enhancing livelihoods, creating a highly skilled population, and embracing and showcasing the diversity of the Virgin Islands culture and heritage.
2. **Vibrant and innovative economy:** Solidifying the worldwide competitive position of the Virgin Islands in tourism and financial services, diversifying the economy, and establishing an enabling environment for businesses.
3. **Resilient infrastructure:** Building robust structures that are capable of withstanding disasters and high levels of stress and recover quickly; improving tele-

communication infrastructure; and ensuring that infrastructure development meets the current and future development needs of the Territory.

4. **Nurtured and sustainable environment:** Ensuring a pristine, healthy, and diverse environment able to support the desired standard of living, quality of life and economic prosperity of the Territory.
5. **Good governance:** Managing the affairs of the Territory in an effective and responsible manner, improving efficiency in the delivery of public services, protecting the safety, security and rights of all people, and ensuring that the rule of law is upheld.

Figure 3

**BVI Recovery and Development Plan
vision, priority sectors and sub-sectors**

VISION PRIORITY SECTORS & SUB-SECTORS				
Cohesive & Empowered Society	Vibrant & Innovative Economy	Resilient Infrastructure	Nurtured & Sustainable Environment	Good Governance
<p>Human & Social Services</p> <ul style="list-style-type: none"> • Health Services • Waste & Debris Management • Social Protection • Housing • Education • Pride & Cultural Identity 	<p>Business & Economy</p> <ul style="list-style-type: none"> • SMEs • Financial Services • Tourism • Fisheries • Agriculture 	<p>Infrastructure</p> <ul style="list-style-type: none"> • Electricity • Roads • Water • Sewerage • Seaports • Airports • Buildings Physical Planning & Land Development • ICT • Telecommunications 	<p>Natural Resources & Climate Change</p> <ul style="list-style-type: none"> • Environment • Renewable Energy 	<p>Governance</p> <ul style="list-style-type: none"> • Public Service • Law&Order and National Security • Disaster Management

The Recovery and Development Plan is the first step in the long-term development of the Territory, ensuring that the recovery efforts are aligned with the principles of resilience and

sustainable development. The future National Development Plan will provide continuity to these initiatives and ensure their integration with the national development processes.

Support to the establishment of the BVI Recovery and Development Agency

UNDP supported the efforts of the Government in building institutions for transparent and efficient implementation of recovery efforts. UNDP supported the conceptualization of the Recovery and Development Agency (RDA). Support was also provided to drafting the legislation that led to the establishment of the RDA, as well as guiding principles for regulations governing its operation. The RDA is responsible for the delivery of the Recovery to Development Plan of the Virgin Islands in a timely, transparent, accountable and efficient manner. The RDA is proposed to have a five-year life-span.

Applying Build Back Better principles in housing repairs and recovery

UNDP has assisted the Ministry of Health and Social Development, which is responsible for housing recovery, with the development of the Housing Recovery Policy

and Hurricane Irma Recovery Plan, 2017-2019. The Plan forms the basis for the current \$15 million Housing Assistance Programme that the Government is implementing in collaboration with other partners. The Housing Recovery Assistance Programme functions in accordance with the Housing Recovery Policy. It seeks to assist property owners who meet pre-defined eligibility criteria in the rebuilding of their property. All repair work conducted as part of the programme is being undertaken in accordance with building regulations issued by the Planning Authority and Building Authority.

2. Building the capacity of the BVI Ministry of Finance to facilitate efficient implementation of the CDB-funded rehabilitation and reconstruction loan.

From April 2018, UNDP has been building the capacity of the BVI

Ministry of Finance for the efficient and timely implementation of the CDB-financed \$65.29 million Rehabilitation and Reconstruction Loan (RRL). UNDP provides project management, procurement and strategic sourcing support, financial management and other technical expertise. UNDP has established a project office to support the Projects Unit of the Ministry of Finance.

The CDB RRL seeks to assist with the recovery, rehabilitation and reconstruction of social and economic infrastructure, and strengthening preparedness and resilience in BVI. This is being done through the procurement of 18 design and project management consultants, execution of construction works, and acquisition of goods and supplies (43 contracts). Projects include:

- **Infrastructure works.** Reconstruction and rehabilitation of roads; construction of sea defences; slope stabilization works; rehabilitation of water supply and sewerage systems; recon-

struction and rehabilitation of ferry terminals; rehabilitation of administration buildings, including courts; reconstruction of the Department of Disaster Management (DDM) building; repair and rehabilitation of schools; and reconstruction of the Special Needs Learning Centre and recreational facilities.

- **Equipment, tools, materials and supplies.** Supply and installation of furniture and equipment/tools and provision of learning materials for reconstructed and upgraded education institutions; information and communication technology (ICT) equipment to schools, the police service, courts and government offices, and early warning equipment (automatic weather stations and seismic monitors) and a telecommunication network for enhanced preparedness and response capacities.
- **Design and engineering services.** Consultancy services for design, technical specifications, inspection, construction supervision and contract administration.

- **Institutional strengthening.** Training in and provision of psychosocial services to children and families, teachers, health workers, social workers and representatives of NGOs; and climate risk and vulnerability assessments (CRVAs).
- **Engagement of project management teams and a community liaison officer (CLO)** for improved climate resilient and socially-inclusive infrastructure and institutions in the transport, water and sewerage, governance, education and national security sectors in BVI.

UNDP has prepared and reviewed TORs to ensure coherence with applicable standards, fair competition and the required technical inputs, and has launched 12 tenders for consultancy services for a total value of \$6,051,000. These consultancy services will be the basis for the implementation of the infrastructure works. In addition, UNDP has prepared three tenders for the procurement of goods for a total value of \$2,045,000.

UNDP procurement support to BVI has been achieved through technical assistance, substantive on-the-ground consultations, strengthening of government coordination mechanisms, and site visits, among other interventions. UNDP is also designing and implementing a capacity development framework for the implementation of social and environmental safeguards (in procurement, infrastructure design and implementation), while facilitating consultations and dialogue with communities to support the vision of the Government to rebuild a better, stronger and greener territory in a sustainable and resilient way and to re-establish socioeconomic well-being. Finally, UNDP is putting mechanisms in place for the timely and effective implementation of strategic sourcing, procurement and supervision of consultants, and management of contracts for goods, works and services.

3. Debris management

Since tourism is a major income generator, key facilities – including ports of entry, as well as important tourism sites, such as beaches – were prioritized for debris removal. All activities of the project were completed successfully. These included: introductory consultations; procurement and distribution of tools and personal protective equipment; debris clearance and recycling; and transfer of cash to beneficiaries. The removal of debris is ongoing in BVI, and the Government has initiated a Special Debris Clearance Project, budgeted at \$560,000 by the RDA, which targets specific

high-risk areas as determined by the Department of Waste Management. Removal of debris is a particularly significant intervention for the recovery of the tourism sector in BVI.

4. Emergency employment/ cash-for-work

UNDP undertook an emergency employment/ cash-for-work programme in BVI, with CERF financing. Beneficiaries were residents who were identified by the Department of Waste Management (DWM). Through this initiative UNDP partnered with a local non-profit organization, Green & Clean VI, in clearing debris, cutting bush, cleaning up the roadways (es-

pecially around major tourist sites) and removing metal debris in Virgin Gorda. Organic debris was collected and recycled through the school compost programme run by the organization, while the larger debris was mulched and used as ground cover in public areas. Two thousand four hundred pounds of galvanized roofing material and 700 lbs of scrap aluminium were cut on site and transported to a recycling facility to be baled for export and recycling. Approximately 400 lbs of assorted domestic recyclables were sorted from the same area and removed to the facility for processing and recycling.

Daniel Fligelstone Davies

BVI's Emergency
Employment Programme
UNDP Beneficiary



Daniel Fligelstone Davies witnessed the roof of his neighbors' home being ripped off and rescued them from their destroyed home. His neighbors, who have four children – two under ten – had witnessed Irma make an attempt on their lives as it tore off their roof. Daniel believes that the Emergency Employment Programme has helped some of the participants regain confidence and hope for a brighter future. He expressed his wish for the programme to go on longer as the families in the programme are in desperate need of a stable income.



Sint Maarten

1. Building Back Better for long term resilience

UNDP in partnership with the Government of Sint Maarten, specifically, the Ministry of Public Housing, Spatial Planning, Environment and Infrastructure (VROMI) provided technical assistance for the development of a Building Back Better Manual. The manual, which includes technical specifications and illustrations, has been incorporated as a building guide for VROMI on resilient roof repairs. This methodology is now institutionalized and has been shared with other development actors on the ground including The World Bank, White and Yellow Cross, VNG International, and the International Cooperation Agency of the Association of Netherlands Municipalities.

2. Resilient Reconstruction

Thanks to a fruitful partnership with the Dutch Recovery Funds for Sint Maarten under the auspices of the Ministry of the Interior and Kingdom Relations, UNDP partnered with VROMI for the reconstruction of roofs and home repairs for most vulnerable persons. Consistent with UNDP's procurement procedures, trained contractors were hired and quality materials for resilient reconstruction were utilized. In addition to the training received, the concept of resilient reconstruction has been promoted in anticipation of potential catastrophic events. To date, as part of an initial project, 28 houses have been completed in eight different districts in line with the Build Back Better guidelines, thus making them

more resilient to hurricanes. An additional 47 households are expected to benefit from repaired roofs by the end of the year.

3. Community Cleanup (Debris Removal Programme)

The VROMI-UNDP Community Cleanup Programme focused on debris removal and management in fifteen districts in Sint Maarten. As a result, 15,660m² of debris were removed from public and private areas targeting most vulnerable households and restoring access to some remote areas.

Through partnership with the Collective Prevention Services (CPS), UNDP executed a mosquito-fogging programme where CPS was able to train unemployed persons in mosquito fogging to become Vector Control Apprentices. The joint effort succeeded in eliminating mosquito breeding at debris clean-up sites thus preventing the possible outbreak of vector-borne diseases, particularly those spread by mosquitoes.

In collaboration with Nature Foundation and Kidz at Sea, UNDP completed the clean-up of the Oyster Pond, a large water source in the shoreline. The clean-up took place in mangrove and marine life management areas, where due care to the local ecosystem was paramount. UNDP support included especial assistance to unskilled workers, technical staff and provision of equipment. Given the complexity of the programme, divers were used to monitor the marine environment under water and heavy equipment was required to remove large chunks of debris from the water source.

4. Emergency Employment Programme ‘Cash-for-Work’

Reactivation of local economies and income generating activities for affected communities are key elements of UNDP recovery interventions. In Sint Maarten, UNDP collaborated with the Ministry of Public Health and Social Development to conduct a National Employment Registration Survey (NERS) for the identification of persons who had lost their jobs or worked fewer hours as a direct result of the impact of Hurricane Irma. This process permitted the creation of a pool of unskilled workers who could be employed in various UNDP projects namely, the Community Clean-up and the Roof Repair Programme. The Government and UNDP also encouraged local contractors to hire unskilled workers to promote greater social inclusion resulting in UNDP providing jobs to 204 persons within their own communities.

An exit survey of workers indicated that the cash-for-work programme significantly assisted their livelihoods

in time of need. Forty-five percent of those surveyed revealed that the income from the project was their sole source of income. Of those surveyed, 55 percent needed to supplement their income by undertaking casual work outside the project and 60 percent of the income was used to pay for accommodation. The rest was used to cover children needs and buy food and other household essentials. Overall, worker satisfaction was high. All surveyed persons appreciated the opportunity to earn an income at a critical time. A significant number of workers were able to find regular employment with a contracting entity as they had also acquired some additional skills.

5. Disaster Management and Risk Evaluation

Using lessons learnt after Hurricane Irma, in support to relevant authorities, UNDP conducted an evaluation to help improve preparedness and overall emergency and disaster management. The evaluation was informed by a wide stakeholder consultation that included the govern-

ment, the private sector, NGOs and affected communities on topics such as disaster response, immediate preparedness, operations, restoration and humanitarian assistance. A key outcome of the evaluation was the identification of areas for strengthening and findings to close gaps.

The final report offered three main recommendations for improvement related to the vital areas of community awareness, community develop-

ment and telecommunication. Firstly, improving awareness - education of the community on how to prepare for crisis/disaster including the building specifications, being properly insured, property maintenance and establishing a family/community evacuation plan and sustainability plan (food, water etc). Secondly, community development - mobilizing and training already existing community (district) councils and establishing other councils in all districts to identify those vulnerable in the

community, to identify safety hazards and to serve as a first response team. Thirdly, telecommunication - establishing an emergency telecommunication system that can withstand disaster, and a reliable and formal system for giving warnings island wide. The telecommunication system must consider the needs of persons with disabilities such as hearing impairment.

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“I am thankful, on behalf of the Sint Maarten people, for the assistance rendered via this project to the roofless.”

”

Honourable Minister Miklos Gitterson
Minister of Public Housing, Spatial
Planning, Environment and Infrastructure



B.B. UNDP cash for work contractor

I was always in the construction field. I was able to do certain things like building houses, but the hurricane took away my job as a construction contractor. Before, my company was hired to just build houses but now persons would first need to clear away hurricane wreckage, and very few had the financial means to do so. Which means, I was without work. Though after the hurricane we willingly volunteered to clean families' and some of our neighbours' yards, we were still not making an income."

Becoming a listed contractor in UNDP's "Cash for work" project actually brought me to say, 'Okay fellas, we can actually clean up and get money for it'; we can now earn an income to feed our families. It's a plus.

"In my personal view, I found everyone passionate about the work. Not only because we were being paid, but because we were out here doing something, making a change.

Do you know how good it feels? Sometimes we pass on Link One and look over Raoul Illidge and say to ourselves, "we cleaned this, we cleaned Raoul Illidge. It's a sense of pride."

B.B. said in a recent interview.

"I am now very proud to say, because of my participation in the UNDP's cash for work project, I have gained a new skill and was able to get my income," said B.B.

WAY FORWARD



7

UNDP has assisted Governments, national institutions and affected communities in the essential initial steps of their recovery efforts. Overall recovery needs for Dominica, Antigua and Barbuda, Sint Maarten and BVI amount to more than \$2 billion. Recovery funds being managed by UNDP represent one percent of recovery needs. Significantly more funds are needed to make the necessary strides for resilient recovery in affected states and prevent further losses in the future.

Given the vulnerability of all the countries and territories in the Caribbean, building resilience must be a priority for the entire region. UNDP is proud to be working closely with CARICOM, CDEMA and other regional stakeholders including private sector partners and key stakeholders such as the Climate Smart Coalition, the Clinton Foundation, insurance companies, UN agencies, funds and programmes and other relevant actors.

Building resilience is a gender responsive and transformative process of strengthening the capacity of people, communities, institutions, and countries to anticipate, manage, recover, and

transform from socio-economic environmental shocks. In order to support the efforts of the affected countries in building resilience UNDP proposes to provide support for diagnosis of disaster management systems ensuring to address gender responsiveness and sustainability.

Regional approaches to climate risk will be grounded in the work with governments and communities in the following areas of intervention:

- **Adaptation and risk governance:** fostering resilience for food security; livelihoods, climate-resilient integrated water resource and coastal management; climate-resilient infrastructure and energy.
- **De-risking:** risk assessment and analysis, legislative and institutional frameworks and energy de-risking.
- **Investments and access to finance:** studies on resilience building, economic diversification and energy
- **Insurance for sustainable development:** promotion of micro-insurance for the most vulnerable communities and populations.





From early recovery to long-term
resilience in the Caribbean
Hurricanes Irma and Maria:
One year on

Barbados and the OECS
September 2018