NOTE FROM THE EDITOR

The COVID-19 crisis continues to unfold as the 2020 hurricane season has begun. This is unchartered territory for all of our member states. The development of a storm or hurricane that could pose a direct threat would be a cause for great concern in the COVID-19 context.

The team at the CARICAD Secretariat has always embraced the old adage, “Prior preparation prevents poor performance”. In that regard, experience has shown us that it is the entire public sector of our member states that must be well prepared, not only for dealing with the effects of the continuing COVID-19 crisis, but also the very real threat of storms and hurricanes.

The experts have predicted that the 2020 season will be above average in level of activity. They have put the odds of a direct impact in our region at more than 50% probability. **We should not take that forecast lightly.** We must prepare purposefully and perform to the best of our ability. Then if we are hit, we should use the opportunity to transform our societies, making them more resilient. We have produced this special edition of CARICAD’s *Horizon Newsletter* to help the public sectors in member states to prepare for the 2020 hurricane season with the backdrop of the COVID-19 crisis very much in mind.

We have provided practical suggestions that we hope our public sector leaders/managers will embrace and implement. We are aware that you might require more detailed and in some cases, very specialised information that you might not get here in this edition of the Horizon but we hope that this Horizon will make you determined to get any such information from other reputable sources. Please contact us and let us know if there is anything you think that we at the CARICAD Secretariat can do to help you to prepare effectively for this special, 2020, hurricane season.

*Devon Rowe, Executive Director CARICAD
June 2020*
The COVID-19 crisis continues to unfold even though the rate of infection is slowing in CARICAD member states than in March of this year. This means that in 2020, Hurricane Preparedness and if necessary, Response and Recovery will be taking place in a COVID-19 context. The reopening of the economies in member states will add a level of concern in relation to the possibility of a "second COVID-19 wave".

Effective actions in the Preparedness phase, long before any potential hurricane effects arise, are vital for proficient Response and Recovery. The 2020 hurricane season is forecast to be above average in level of activity. In April of this year, the Colorado State University (CSU) predicted 16 named storms for the season. They also predicted three major hurricanes, with the probability of a major hurricane strike in the Caribbean at greater than 50%. On June 4th, the CSU forecast was updated and they increased the named storms to 19 and the major hurricanes to 4. The forecast described above suggests that prudence dictates that all CARICAD member states plan for the probability that impact from a storm or hurricane will occur. We should note that while other forecasters proffer slightly different numbers, there is a consensus that the 2020 season will be above average in activity.

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The Novel Coronavirus was first reported in the Caribbean during the first week of March 2020. It had been reported in at least 14 Caribbean countries and territories by the third week in March. The virus proved very infectious with high levels of person-to-person transfer. Member states quickly went into “Lockdown” mode. Member states up to this point seem to have done a good job in controlling the spread of the virus. Most are reopening in a phased manner.

The Novel Coronavirus dramatically affects:
- Proximity and personal closeness in all business and social interactions
- The distance that must now be maintained between workers
- Handling of materials, especially paper money, wood, plastic, glass and stainless steel
- Air and sea travel
- Seating arrangements for public transport, schools and tertiary institutions
- The way all medical and personal care services must now be delivered
- Hand washing practices
- Sanitation regimes
- Hours of work — wearing cloth masks or other facial coverings for extended periods of time
- Dining arrangements at work and in public
- Sports, recreation and entertainment events

POLICIES AND STRATEGIES
The list of issues shown above is creating a “new normal” for human interaction throughout the world. The 2020 hurricane season coincides with efforts in member states to “re-open the economy and society”. This means that the challenge to maintain physical and social distance will be greater than it was during “Lockdown”. There could be unprecedented management challenges in relation to Hurricane Preparedness among the CARICAD member states that are threatened each year by tropical storms and hurricanes.
CARICAD recommends the following strategic and operational approaches for member states during the 2020 hurricane season in the context of COVID-19:

- **Thoroughly assess the strengths and weaknesses of all arrangements for the hurricane season, especially strategy-level planning documents, organisational structures, staffing/personnel, supplies, equipment and other resources. Take urgent action to deal with weaknesses that could negatively affect Preparedness/Response and Recovery efforts.**

- **Urgently review the national disaster policy and regulations and ensure that there is no conflict with any of the regulations brought into effect for the COVID-19 Response.**

- **Review and revise the National Emergency Operations Centre (NEOC) plans and arrangements. Ensure that there is a proper interface with the COVID-19 Task Force or closest equivalent working group or committee.**

- **Appoint a Hurricane/COVID-19 chief strategist for 2020 preparations. That person should have a declared Deputy and should report directly to the Head of Government or Head of State as appropriate. This could be done initially as a temporary re-deployment for the 2020 hurricane season.**
Review all national/territorial/sectoral/agency hurricane-related plans for Preparedness, Response and Recovery and ensure that mitigative strategies for dealing with the COVID-19 crisis are included as updates in the plans for all phases of the Disaster Cycle.

Direct all public sector entities (Ministries, Departments, Public Companies, Executive Agencies, Statutory Boards and Public Corporations) to prepare or update their Business Continuity Plans. The plans should include guidelines for dealing with both hurricane Recovery and the COVID-19 crisis; among other hazards and threats. Ensure also that the plans are based on and aligned with the national guidelines for both hurricanes and COVID-19. Finalise the documents by July 15th, 2020.

Pay close attention to any personnel who will be required to assist in emergency medical response, front-line health care, search and rescue and shelter management. Ensure that they are aware of their higher levels of risks and the need for them to be vigilant with regard to COVID-19 so that they can reduce the risks to co-workers if they will be involved in internal organisational post-hurricane Recovery.

Create an integrated and harmonised, multi-dimensional public awareness strategy for hurricane preparedness and COVID-19.

Ensure that any specialised COVID-19 quarantine facilities can be easily “stood up” or made ready at very short notice for the duration of the hurricane season. Fine-tune or reactivate contact tracing arrangements for COVID-19.

Ensure that there is a stockpile of Personal Protective Equipment (PPE) for all front-line personnel. Remember that front-line personnel for post-hurricane Preparedness will be a broader and possibly larger group than for the original COVID-19 response.

Make warehouse management policies COVID-19 response-compliant.

Make sure that key personnel receive COVID-related hurricane training.

Churches in The Bahamas were not spared Hurricane Dorian’s wrath. (Photo by Fr. Bowe)
Continued from previous page

⇒ Establish a Monitoring and Reporting mechanism for Hurricane Preparedness and Response that can be easily extended into Recovery if required

⇒ Review emergency shelter policy, strategy and plans. It is likely that there will be major adjustments needed in shelter plans to cope with the COVID-19 threat and the physical distance recommendations of WHO/PAHO

⇒ Review and revise all shelter management rules and guidelines to ensure that they are made compliant with COVID-19 procedures. Ensure that they are ratified as may be required by local law

⇒ Create a COVID-19-compliant policy for long-term care facilities especially those that may become longer-term emergency shelters for elderly or special needs persons

**GENERAL/OPERATIONAL SUGGESTIONS**

⇒ Clarify and finalise deployment arrangements for public officers who may be required to lead or support a post-hurricane Recovery effort. Make sure that they will not be listed as critical for the ongoing COVID-19 response

⇒ Clarify and promulgate guidelines for the deployment of vulnerable staff and personnel during the 2020 hurricane season in the context of COVID-19

*Aerial shot of Marsh Harbour, Abaco, The Bahamas after the passage of Hurricane Dorian. (Photo by Fr. Bowe)*
Review operational guidelines, checklists and protocols and revise them to include relevant precautions for dealing with COVID-19 Preparedness, Response and Recovery tasks.

Brief staff at all levels about the plans for hurricane and COVID-19 preparedness.

Establish operational procedures that will be consistent as far as practicable in all those agencies that provide direct service to the public with COVID-19 compliant guidelines for matters such as:

- Hours of operation for service to the public
- Retrofitting of their service counters
- The security arrangements that will be put in place for offices, facilities, equipment and supplies
- Sanitation procedures especially on entry by the public
- Requirement to reduce numbers in confined spaces and common areas
- Recommendations to observe physical distance in all face-to-face interactions
- Maintenance of staff and visitor logbooks or registers with contact details
- Protocols for the use of PPE
- Dealing with suspected COVID-19 cases and contact tracing in hurricane Response and Recovery situations
- Procedures for maintaining high standards of personal hygiene and high standards of sanitation in offices and other places of work and interaction. This might include mounting of new hand sanitizer stations and introducing additional guidelines for garbage disposal
- Arrangements for provision of masks for personnel and visitors as an emergency measure — if required
- Public service announcements — video/audio/graphics; Social Media
- Review and revise Relief Management procedures to include COVID-19 related protocols and precautions
- Transportation arrangements for military personnel and volunteers. The arrangements should comply with the COVID-19 protocols and precautions
- Sanitation and hand-washing procedures for locations at which large numbers of persons might be working for extended periods of time such as at the National Emergency Operations Centre (NEOC). There could be a need to install additional hand washing facilities
- Mandate and oversee the necessary training for Shelter Managers and their teams. Their guidelines should include procedures for visitors at shelters
- Establish procedures for dealing with non-compliance at shelters
- Stockpile an adequate supply of WHO/PAHO recommended COVID-19 posters for mounting in strategic areas in shelters and other key facilities
Continued from previous page

- Implement a COVID-19 compliant retrofitting and management programme for sanitation and safety at shelters:
  - Testing of shelterees for COVID-19 on arrival for initial occupancy and during protracted stays at shelters
  - Stocks of modified individual registration sheets maintained in a computer-friendly manner for later data entry
  - Ratio of persons to toilets and showers — number of showers and toilets
  - Sanitizer dispensers
  - Garbage disposal arrangements
  - Transparent barriers (sneeze guards) for reception-type staff/volunteers
  - PPE supplies for shelter personnel including face guards for registration and service personnel
  - Numbers of stoves per shelter — social distancing in meal preparation
  - Expanded spacing of cots and other furniture
  - In-shelter isolation of suspected COVID-19 cases

CONCLUDING SUGGESTIONS

1. Be proactive and initiate planning at all levels early in the hurricane season
2. Seek to create a culture of mutual support among key officials
3. Share information about plans with the public on a consistent basis
4. Complete or update all critical MOUs before the peak of the hurricane season in August/September

The Caribbean region has a wealth of experience in preparing for and responding to hurricanes. The same cannot be said for the COVID-19 crisis but the crisis requires the use of leadership, management, teamwork and outreach principles that are well known to many. Let us regard that as a strength as we face this unprecedented challenge.
On June 4, 2020, The Colorado State University’s Tropical Meteorology Project Team reaffirmed its prediction for an above average hurricane season in terms of activity. They predicted:

19 named storms
9 hurricanes
4 major hurricanes (Saffir/Simpson category 3-4-5 with sustained winds of 111 miles per hour or greater)

The Atlantic hurricane season starts officially on June 1st each year and ends on November 30th. On May 21st, 2020, The National Oceanic and Atmospheric Administration (NOAA) Climate Prediction Centre, a division of the National Weather Service in the USA, predicted that the 2020 hurricane season would be an active one. The NOAA outlook predicts:

“A 60% chance of an above-normal season, a 30% chance of a near-normal season and only a 10% chance of a below-normal season. NOAA’s Climate Prediction Center is forecasting a likely range of 13 to 19 named storms (winds of 39 mph or higher), of which 6 to 10 could become hurricanes (winds of 74 mph or higher), including 3 to 6 major hurricanes (category 3, 4 or 5; with winds of 111 mph or higher). NOAA provides these ranges with a 70% confidence. An average hurricane season produces 12 named storms, of which 6 become hurricanes, including 3 major hurricanes.”
The World Meteorological Organization (WMO) maintains lists of hurricanes for each of the tropical cyclone prone areas of the world. The Atlantic area also includes the Caribbean Sea and the Gulf of Mexico.

This action is in keeping with a convention that was agreed to in 1950 to formally name Atlantic hurricanes. A list was originally kept by the National Hurricane Centre (NHC) in the USA. The responsibility passed to the WMO in 1953. The storms and hurricanes are referred to as Tropical Cyclones.

The list of names comprises 21 alternating names of men and women. The names of men were not included until 1979. The list is re-cycled in the sixth year. This means that for example, a list used in 2019 is re-cycled in 2025.

Whenever there is a need for more than 21 names in a season, the Greek alphabet is used. In cases in which storms occur in December they are given names from the list for the current season.

On the other hand, storms which occur very early in the calendar year are given names from the next season’s list.

The names of hurricanes which prove deadly (loss of life) or costly in terms of damage are retired so they will not be confused with any subsequent storms that could carry the same names.

It is also considered as a gesture of human sensitivity.

**NOTE:** Arthur, Bertha and Cristobal all appeared by June 2nd, 2020. This was the first time that three named storms had appeared so early in the season.
have found that one of the most challenging of the issues in helping to prepare communities for the effects of hurricanes is that there is a tendency to focus on the characteristics and features of the storms themselves and not on the effects. In that regard I have developed the concept of the Seven Ds (7Ds) of Disaster and applied it to hurricanes, a major hazard, but it is also applicable to others that can create disasters. The graphic below displays the concept.

DEATH
The graphic starts with DEATH. Hurricanes have been responsible for deaths. It must be stated that most of the deaths caused by hurricanes happen because of in-land flooding and storm surge at the coastline. It appears that our member states are becoming increasingly proficient at saving lives during hurricanes.

DAMAGE
Hurricanes cause extensive damage. The damage occurs across all sectors in the natural and built environments. All economic sectors, the public, social and community sectors can suffer damage. The damage can result from a combination of strong winds, heavy rains and floods. Secondary damage may occur from exposure to the elements after the initial hurricane impact. The list of areas where damage occurs is as broad as human everyday living experience.

- Coastlines, beaches and reefs
- Forests and vegetation
- Houses
- Commercial buildings
- Schools
- Office complexes
- Airports and ports
- Roads
- Bridges
- Boats - commercial
- Vehicles Personal effects

DESTRUCTION
It is important to recall that anything that can be damaged by a hurricane can also be destroyed by a hurricane; if the forces are strong enough. One of the greatest challenges in Recovery management after a hurricane is the challenge of replacing what has been totally lost or otherwise destroyed. This is particularly important in relation to critical facilities such as hospitals and airports. It is also pivotal in social recovery if many houses, tertiary institutions and schools are destroyed in a hurricane event. It is important to appreciate that the mere existence of a hazard does not automatically or immediately result in a disaster. There tends to be a progression from the appearance of a hazard to the negative effects that may culminate in an emergency a crisis or a disaster. Overall vulnerability is a function of the relationship between hazards and level of risk.
DISRUPTION
A major hurricane impact results in disruption. The disruption relates primarily to services. Services provided by all sectors are usually suspended because the situation must be assessed and decisions taken as to how best to resume services. This often takes time. It sometimes affects essential services.

DELAY
Delays are common with hurricane impacts. Entities might have been directly damaged but because of disruptions that have taken place in other areas of the economy, then delays arise. A school might not have undergone serious damage but if there is extensive damage to the water system, the school cannot resume.

DISORDER
Hurricanes can create disorder in several ways. The disorder can result from the destruction, damage and delay alluded to before. Additionally, disorder can result from actions by small groups of persons engaging in nefarious activities such as looting or larceny.

DESPAIR
There is an increasing realisation that major hurricanes can create a sense of despair that can affect individuals, families and communities. There is also the realisation that the socio/economic realities of our region indicate that the despair is often greater among women because of their living circumstances. This is an area in which there are increasingly strident calls for preventive and corrective action.
The principal difference in the categorisation of a Hurricane over a Tropical Storm is the sustained wind speed. A storm has sustained wind speeds that are between 39 and 73 miles per hour (mph). Hurricanes have wind speeds that may range from 74 miles per hour to more than 160 mph. Both systems can have wind gusts that are higher than the sustained winds. In general terms, winds are not the hurricane-generated hazard that cause the highest numbers of fatalities. However, the winds do cause fatalities and extensive damage. It is useful to think of the effects of hurricane winds in two distinct but related categories, direct and indirect effects. Let us consider the effects of hurricane winds.

DIRECT EFFECTS OF WIND DAMAGE
Hurricane winds can do extensive damage by the sheer physical force of the winds. This happens when trees are unrooted, electrical poles toppled and perimeter fences flattened. The direct effects of wind damage can amount to millions of dollars in each event.

In 2017 colleagues and friends in the British Virgin Islands (BVI) described scenes like the following:
- Yachts removed from marinas and deposited in main roads
- Cars lifted unto porches
- Roofs deposited in neighbouring front yards
- Washers and dryers removed from verandas and put into the streets
- Windows shattered by the force of the wind alone
- Cutlery from one apartment being blown into another

In 2004 in Grenada there was a famous story about a house that had “crossed the road” in a coastal village due to Hurricane Ivan. Hurricane winds can also damage buildings directly because of the force of pressure differentials. The pressure exerted by the wind on one side of a building or on the roof might be greater that on another side of the building. In a major hurricane that difference can be so great that in a manner of speaking the building virtually explodes. Buildings that have roof coverings made of materials other than concrete or have a very low pitch are particularly susceptible to this form of damage. The changes in force and pressure can be particularly marked if the eye of the storm passes over or near a particular location. In Hurricane Hugo in Montserrat in 1989, I can recall that my ears “popped” near the time of the passage of the eye of the storm because of pressure differentials.

INDIRECT EFFECTS OF WIND DAMAGE
The indirect effects of hurricanes can be thought of as a both a companion to and largely a consequence of the direct effects. The force of the wind can topple huge trees. When those trees fall if they fall on a house or vehicle that can do great damage. Sadly, there have been cases where people have been killed when trees fall on houses.

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One of the most dramatic features of a major hurricane is the nature and extent of flying debris. Debris driven by hurricane force winds can do extensive damage. Portions of roofs, tree branches, garbage cans, outdoor furniture and construction debris can become truly lethal missiles on the winds of a major hurricane.

One of the ways in which major hurricanes cause indirect damage is through the impact of “horizontal rain”. If you have not experienced it, you might find it hard to believe. The force of the winds is enough to send the rain forward parallel with the ground at building level. Most buildings, especially houses, are designed for normal rain that falls vertically; horizontal rain can cause extensive interior flooding.

**CREATING RESILIENCE TO HURRICANE WINDS**

It is important that we accept hurricanes as a part of the reality of Caribbean life that requires human behavioural change to promote higher levels of resilience. Experts in some quarters are predicting that hurricanes might become more powerful in the years ahead. Should that forecast prove to be accurate then we must bear the following in mind: in hurricanes, the wind force increases exponentially. This means that in a hurricane, that is 25 mph stronger, the force of the winds will be 73% greater.

- Countries should have cohesive policies for Disaster Risk Reduction in relation to all hazards particularly land zoning and physical planning
- All our member states should work to create or revise their building codes and ensure that the appropriate resistance requirements for wind damage are included along with provisions for all major hazards
- Rigorous standards should be introduced and maintained for construction materials to promote resistance to all hurricane hazards. The standards should be backed up with relevant, modernised laws and regulations
- The training that is formally provided in construction methods should be standardised to ensure the acquisition of skills and techniques related to hazards
- The mechanisms that are used for building inspection should be vigorously implemented in all sectors.

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Portions of roofs, tree branches, garbage cans, outdoor furniture and construction debris can become truly lethal missiles on the winds of a major hurricane. (Photo by Fr. Bowe)
Tropical Storm Erika passed just to the north of Dominica overnight and during the morning of August 27th and 28th, 2015. The storm deluged the country with torrential rain for several hours. It is estimated that in some locations as much as 12 inches of rain fell in a six-hour period. The intensity of the rain resulted in substantial damage to the country’s network of roads and bridges.

There was some loss of life and persons are still missing. Houses and other buildings in close proximity to rivers and ravines were damaged or destroyed. In summary, the storm’s impact resulted in the declaration of nine Special Disaster Areas and an additional nine Critical Areas as shown below.

### SPECIAL DISASTER AREAS
1. Petite Savanne
2. Bath Estate
3. Coulibistre
4. Pichelin
5. Good Hope
6. Petite Soufriere
7. San Sauvier
8. Dubique
9. Campbell

### OTHER CRITICAL AREAS
1. Checkhall
2. Boetica
3. Delices
4. Bagatelle
5. Grand Bay
6. Colihaut
7. Fond St. Jean
8. Tarreau
9. River Estate

The entire community of Petite Savanne had to be evacuated and the decision had been taken that the community would be relocated.

One result of the storm impact is that 300 persons had to be accommodated in Emergency Shelters.

**SOURCE:** Mission Report – Franklyn Michael; September 22, 2015
Hurricane Ike, a Category 4 system with sustained winds of 135 mph (215km/hr), impacted the Turks and Caicos Islands on September 6th and 7th, 2008. The event occurred one week after the passage of Tropical Storm Hanna, which circled the islands twice before heading northwards. Hanna had deluged the islands with rain during the week before the arrival of Hurricane Ike. There was no loss of life but there was widespread damage, destruction, dislocation and interruption of governmental, commercial, economic and social services.

The Government of the Turks and Caicos declared a disaster area for the islands of Grand Turk and South Caicos due to the extent of the destruction, damage, disruption and dislocation. A detailed macroeconomic assessment of the effects and impacts of the two events has been prepared by the Economic Commission for Latin America and the Caribbean (ECLAC). The Final Report submitted in December 2008 provides an in-depth description of the impact of the two hurricanes.

ECLAC submitted its report: *Macro Economic Assessment of the Damage and Losses Caused by Tropical Storm Hanna and Hurricane Ike* - to the Government of the Turks and Caicos Islands in December 2008. The report highlights the following effects:

- 31% of the population or 10,270 persons were affected by Tropical Storm Hanna and Hurricane Ike
- 2% of the population or 825 people were severely affected

The total impact represented:
- 25.8% of GDP,
- 96.2% of tourism GDP
- 40.6% of exports of goods and services
- 54.4% of gross domestic investment
- 35% of consumption
- 350.6% of public external debt

The report notes that there was differential impact both by sector and by island with tourism and Providenciales suffering the least damage. Damage was severe in Grand Turk, South Caicos and Salt Cay with almost every home suffering some degree of damage.

*Source: Draft Recovery Plan for Post Hurricane Recovery in the TCI – September 2008 – Franklyn Michael, Programme Specialist - CARICAD*
Preparing for hurricanes in CARICAD member states must be done against a backdrop that is different from locations on the mainland of the United States such as Florida or the Carolinas:

- **Most member states are economically dependent on tourism.** The numbers of tourists on any given day, may be many thousands in a non-COVID-19 setting

- **Evacuation of islands by road out of the path of the storm is impossible**

- **Regional travel will most likely be suspended in the smallest of the member states even before winds get to tropical storm strength**

- **Ferry services might have to be suspended because of difficult docking conditions**

- **Critical facilities such as hospitals, ports and airports are few**

- **Stockpiles or emergency stores of emergency supplies are very limited**

- **There is a heavy reliance on imported foods especially long shelf-life food like canned and dried goods**

- **Modern house construction styles, although making homes more salubrious, has made the buildings more vulnerable to wind damage – lengthy overhangs, lots of glass, lower pitched roofs, limited use of hurricane straps**

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CARICAD suggests that all public sector entities (focus of CARICAD’s mandate) plan for the persistent threat of hurricanes and the high probability of impact; somewhere in the region each year. This requires a commitment on the part of public sector managers and leaders to embrace preparedness as part of the job.

It is important to be thorough and systematic with hurricane preparedness. Make hurricane preparedness (should really be all hazard preparedness) a part of organisational culture.

In that regard CARICAD suggests the use of a framework such as the **BE, KNOW, HAVE and DO Model** that we proffer for managing in a crisis, be adapted for hurricane preparedness.

We are at the start of the hurricane season, so we have adapted the original BEFORE dimension of the model to focus specifically on hurricanes. It is our hope that with continuous improvements in preparedness, fewer lives will be lost and few hurricane impacts will become disasters.
## FRAMEWORK FOR PUBLIC SECTOR LEADERS/MANAGERS FOR PREPARING FOR HURRICANES

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<th>BE</th>
<th>KNOW</th>
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<tr>
<td>Committed to leading hurricane preparations</td>
<td>How to get reliable, official, weather information</td>
<td>Clear priorities for your organisation’s work</td>
<td>Redeploy staff according to both competencies and commitment</td>
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<tr>
<td>Conscious that in 2020 (at least) COVID-19 protocols must be observed while dealing with hurricane preparedness</td>
<td>The location of your country in terms of latitude and longitude</td>
<td>Detailed, timely information about the impact of the hurricane on the organisation</td>
<td>Keep up-to-date with official weather information</td>
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<td>An example to your staff – take the hurricane threat seriously</td>
<td>How to communicate at all times with staff and personnel at all levels</td>
<td>An accurate contact list for all staff including residential addresses. Keep a duplicate copy with you at home</td>
<td>Arrange training for staff in critical areas of skill that could be needed if there is an impact</td>
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<td>Be thorough – plan for all departments and units</td>
<td>The members of staff that are likely to be overcome by fear and stress if a threat becomes imminent</td>
<td>Regular briefings among staff as you prepare for hurricanes</td>
<td>Arrange First Aid training for staff</td>
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<td>A source of accurate information about storm threats</td>
<td>Know the Emergency regulations as they might apply to your organisation and its work</td>
<td>Conduct tabletop or if relevant, field exercises for your organisation</td>
<td>Check the Emergency kit in the organisation</td>
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<td>Be organised - Always have relevant documents available</td>
<td>Flood-prone zones in case you and staff have to transit them</td>
<td>Up-to-date contact information for key officials outside of your organisation</td>
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<td>Emotionally competent – consider how your behaviour and leadership styles impact others</td>
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<td>Hard copies of contact lists as back-ups</td>
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<td>Reliable ICT systems and hardware for use for remote work if required</td>
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<td>Accountability procedures in place for use of vehicles, plant and equipment during emergencies</td>
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<td>Duplicate and back up equipment and supplies</td>
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AFTER THE STORM: PERFORM AND TRANSFORM

CARICAD has recently promulgated two documents dealing with post hurricane recovery. The first is a model hurricane recovery strategy and the second is a guide for post hurricane recovery for public sector managers. It is hoped that those documents will be embraced as a resource by public officers. The documents were produced because CARICAD wishes to emphasize that when a major hurricane hits a member state, it is the entire public sector that must respond. The framework below is therefore intended as a quick reference for public sector managers in the event that they are required to participate in post-hurricane Recovery.

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<th>FRAMEWORK FOR PUBLIC SECTOR LEADERS/MANAGERS FOR POST-HURRICANE WORK</th>
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<td><strong>BE</strong></td>
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<td>Ready to work in a highly stressful environment</td>
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<td>Conscious that in 2020 (at least) COVID-19 protocols must be observed while dealing with hurricane recovery</td>
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<tr>
<td>An example to your staff in terms of commitment to the long hours of demanding work needed for Recovery</td>
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<tr>
<td>Committed to urgency allied with effectiveness</td>
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<tr>
<td>A source of accurate information about Recovery</td>
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<tr>
<td>Empathetic and very patient with your staff</td>
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<tr>
<td>Willing to use flexible structures such as working groups</td>
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The public sector has a critical role to play in any crisis, emergency, or disaster situation. Tropical storms and hurricanes are perennial, pernicious hazards in the Caribbean.

The events of the 2017 hurricane season in which at least eight of CARICAD’s 17 member states were directly affected by two major hurricanes, illustrate the importance of the public sector being well prepared for such events in future. In the smallest of the member states the public sector may well be the most prominent provider of healthcare, education, security, utility and communication services. The public sector takes the lead in matters of national security and public safety.

The public sector also takes the lead in matters of welfare and public assistance. The capacity of the public sector for post-hurricane Response and Recovery may determine the overall effectiveness of the Recovery effort.

CARICAD recently promulgated a *Guide for Public Sector Managers for Post-Hurricane Recovery Planning and Management*. It is intended as a reference document for senior managers in the public sectors of CARICAD member states. It is also intended as a tool for capacity building for staff at all levels based on CARICAD’s mantra for crises — Prepare, Perform, Transform.

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The Guide provides information from the concept of a disaster to the priority actions and activities that are needed to lead a Recovery effort after a hurricane impact. It includes information that stresses the importance of Leadership, Management, Coordination and Teamwork to achieve the agreed priorities.

The information was developed after extensive research and drawing on the experience of some of the most knowledgeable disaster managers in the Caribbean region. We have deliberately made the suggestions operational and practical. Many of the practices we advocate can be attested to by our own team based on their experiences.

We hope that public sector managers will keep the Guide as a constant reference during the hurricane season. We also hope that they will use it to help to prepare their Ministries, departments or agencies for the reality of hurricanes this year, and in the years ahead. The Guide is laid out in such a manner that managers can refer to the sections and subsections that may be most relevant to their needs and interests.

It is also written in a manner that allows managers to copy the pages with practical suggestions and tips as a quick reference in a separate folder.

We are promulgating the Guide at the start of the 2020 hurricane season in the hope that public sector managers will use the lead time ahead of the peak of the season to thoroughly familiarise themselves with the contents and to share the Guide with many colleagues.

The CARICAD Schema for Post-Hurricane Recovery Management (2017) is also presented in this newsletter.

Scenario for Reflection - The Political Dimension

You are the National Disaster Coordinator (NDC). Your country was struck by a hurricane two weeks ago. There is significant damage, but the effects are different in different parts of the country. The Prime Minister/Premier has reached you directly on the phone. It is 7:30 p.m. You were just about to leave the Emergency Operations Centre (EOC) for the day. He says he is disappointed that relief supplies are not reaching his constituency in the manner he had expected. He said constituents have told him that. He said that one of his constituents who works in the National Disaster Office told him that the Office is not doing enough to help the people of his (the PM’s) constituency.

The Prime Minister stated that he wants the situation rectified immediately. He also informed you that he is expecting a written report from the Permanent Secretary that you report to within 24 hours explaining what has happened to relief supplies in his constituency and what are the plans.

ASSIGNMENT:
1. What would you say to the PM/Premier on the phone?
2. Describe actions you would take after the conversation with the PM/Premier.
3. What do you consider to be the priorities for you as the NDC going forward in light of the exchange with the PM/Premier?

FOLLOW UP: Please send your opinions to fmichael@caricad.net
Post-hurricane Recovery is a protracted, multidimensional, multi-sectoral, multi-component, multi-agency effort to restore a community affected by a hurricane to an acceptable level of normalcy. It is intended not only to restore life as it was but to make the community more Resilient to hazards of all kinds in future. It is costly and fraught with conflict and misunderstanding. It is a complex process that is sometimes difficult to grasp in its entirety.

When there is a common understanding of the conceptual framework for Recovery, there is less misunderstanding and confusion and much more collaboration, coordination and cooperation.

That common understanding is critical for all key actors in the process. Public sector managers are the usual leaders of the process in a structural setting such as a Recovery Task Force.

The CARICAD Schema for Post Hurricane Recovery Management (below) was developed to provide as a “single-page view” a schematic that shows the process in logical, connected relationships of role, structure, systems, skills, outputs and deliverables.
• Continued from previous page

The CARICAD Schema illustrates the following:

• There is a long sequence of important planning, coordination, management, leadership and implementation activities that are required after a hurricane impact

• Hurricane Recovery often takes several years

• The process is essentially sequential but there is overlap and iteration; strategies and plans will probably have to be changed several times

• Many organisations, agencies and stakeholders are involved

• A journey of successful Recovery leads to greater Resilience

• Good information and data management is a critical component of Recovery

• There are several tiers of oversight in Recovery management

• A Recovery Task force should have an end-date for its work

• External experts should have an end-date for their work

• Successful Recovery is likely to occur in phases – early, short and medium-term and long-term

**CARICAD has developed and recently promulgated a comprehensive template as a Model Recovery Strategy for member states. Both the schema and that template were inspired by and rooted in work done by CARICAD IN 2017/18 with the Government and people of the Turks and Caicos Islands in developing that Territory’s post-hurricane Recovery Strategy.**
Did You Know...

⇒ That there is an average of nine hurricanes in the tropical Atlantic each year

⇒ The 2020 hurricane season is the first in which there have been three named storms by June 2nd

⇒ The Atlantic Basin includes the Caribbean Sea and the Gulf of Mexico

⇒ At least one hurricane has appeared in each month of the year in the Atlantic

⇒ September is considered the peak month for Atlantic hurricanes

⇒ Several hurricanes have occurred on December 25 (Christmas Day) in the Caribbean in historic times

⇒ A storm is not classified as a hurricane until the sustained winds are at least 74 miles per hour

⇒ Hurricane Irma in 2017 had sustained wind speeds of at least 185 miles per hour

⇒ Hurricanes are downgraded to tropical storm status if the sustained winds drop below 74 miles per hour

⇒ Barbados is the most easterly of the islands in the Caribbean chain

⇒ Belize is not a Caribbean island, but it is also subject to the threat of hurricanes

⇒ Hurricanes can do extensive damage through heavy (torrential) rainfall even if the winds are of minimal hurricane strength. It has been reported that a hurricane once drenched Texas with 23 inches of rain in 24 hours

⇒ A hurricane may be as much as 600 miles in diameter

⇒ The winds in a hurricane spin in an anticlockwise manner

⇒ A Knot is a measure of speed. It is one nautical mile per hour. It is slightly longer than a statute mile. You can convert Knots per hour to miles per hour by multiplying the figure by 1.15

⇒ The “All Clear” after the passage of a hurricane is an official declaration that the direct threat from a hurricane is over. Nowadays activities are usually phased back into normalcy. This is especially likely now in 2020 with COVID-19

⇒ Storm surges have been responsible more fatalities in hurricanes than the winds

⇒ The “Eye Wall” of a hurricane has the strongest winds, the heaviest rain and greatest turbulence. That is why damage can be so extensive if the eye of a hurricane passes over a location. The eye wall will impact at some point

⇒ A Millibar is a measurement of the air pressure. Usually the lower the pressure, the stronger the hurricane

⇒ A Category 5 hurricane can generate a storm surge of 20 feet or more

⇒ Water conducts electricity well so walking through water with downed, energised cables is very dangerous

⇒ About 100 tropical waves reach the Atlantic Ocean from the African coast each year but on average only four become major hurricanes
Facts About Hurricanes

Saffir-Simpson Hurricane Wind Scale
(1 = least extreme; 5 = most extreme)

Category 1
- Winds range from **74 to 95 mph**
- Minor damage to property (roof damage)
- Injuries to humans are isolated
- Short-term power outages

Category 2
- Winds range from **96 to 110 mph**
- Significant property damage, flooding
- Increased threat to humans due to falling debris
- Extensive, multi-day power outages

Category 3
- Winds range from **111 to 130 mph**
- Mobile and frame homes destroyed, extensive flooding
- Evacuation necessary for human safety
- Electricity, water unavailable for up to several weeks

Category 4
- Winds range from **131 to 155 mph**
- Houses, shopping centers irreparably damaged
- Humans at serious risk of death in certain areas
- Long-term power outages, water shortages

Category 5
- Winds of **155 mph+**
- Complete destruction of homes, shopping centers
- Trees uprooted, extreme flooding
- Power and water potentially out for months

Source: National Hurricane Center
ARICAD encourages you to become familiar with the specific terms that are used in official circles in relation to tropical storms and hurricanes. The more familiar you are with the meanings of the terms the more confident you will be with your own Preparedness and the more likely you will be to help others prepare. The following are among those terms.

**SOURCE – National Hurricane Centre – USA**

**Advisory:**
Official information issued by tropical cyclone warning centres describing all tropical cyclone watches and warnings in effect along with details concerning tropical cyclone locations, intensity and movement, and precautions that should be taken. Advisories are also issued to describe: (a) tropical cyclones prior to issuance of watches and warnings and (b) subtropical cyclones. They are usually issued every six (6) hours. Special advisories are issued when there is a significant change in storm-related weather conditions.

**Centre (Centre):**
Generally speaking, the vertical axis of a tropical cyclone, usually defined by the location of minimum wind or minimum pressure. The cyclone centre position can vary with altitude.

**Cyclone:**
An atmospheric closed circulation rotating counter-clockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.

**Eye:**
The roughly circular area of comparatively light winds that encompasses the centre of a severe tropical cyclone. The eye is either completely or partially surrounded by the eyewall cloud.

**Eyewall/Wall Cloud:**
An organized band or ring of cumulonimbus clouds that surround the eye, or light-wind centre of a tropical cyclone. Eyewall and wall cloud are used synonymously.

**Gale Warning:**
A warning of 1-minute sustained surface winds in the range 34 kit (39 mph or 63 km/hr) to 47 knots (54 mph or 87 km/hr) inclusive, either predicted or occurring and not directly associated with tropical cyclones.

**High Wind Warning:**
A high wind warning is defined as 1-minute average surface winds of 35 knots (40 mph or 64 km/hr) or greater lasting for 1 hour or longer, or winds gusting to 50 knots (58 mph or 93 km/hr) or greater regardless of duration that are either expected or observed over land.

**Hurricane/Typhoon:**
A tropical cyclone in which the maximum sustained surface wind (using the U.S. 1-minute average) is 64 knots (74 mph or 119 km/hr) or more. The term hurricane is used for Northern Hemisphere tropical cyclones east of the International Dateline to the Greenwich Meridian. The term typhoon is used for Pacific tropical cyclones north of the Equator west of the International Dateline.

**Hurricane Season:**
The portion of the year having a relatively high incidence of hurricanes. The hurricane season in the Atlantic, Caribbean, and Gulf of Mexico runs from June 1 to November 30. The hurricane season in the Eastern Pacific basin runs from May 15 to November 30. The hurricane season in the Central Pacific basin runs from June 1 to November 30.

**Hurricane Warning:**
A warning that sustained winds 64 kt (74 mph or 119 km/hr) or higher associated with a hurricane are expected in a specified coastal area in 24 hours or less. A hurricane warning can remain in effect when dangerously high water or a combination of dangerously high water and exceptionally high waves continue, even though winds may be less than hurricane force.

**Hurricane Watch:**
An announcement for specific coastal areas that hurricane conditions are possible within 36 hours.

**Indirect Hit:**
Generally refers to locations that do not experience a direct hit from a tropical cyclone, but do experience hurricane force winds (either sustained or gusts) or tides of at least 4 feet above normal.

**Landfall:**
The intersection of the surface centre of a tropical cyclone with a coastline. Because the strongest winds in a tropical cyclone are not located precisely at the centre, it is possible for a cyclone’s strongest winds to be experienced over land even if landfall does not occur.

**Major Hurricane:**
A hurricane that is classified as Category 3 or higher.

**Storm Surge:**
An abnormal rise in sea level accompanying a hurricane or other intense storm, and whose height is the difference between the observed level of the sea surface and the level that would have occurred in the absence of the cyclone. Storm surge is usually estimated by subtracting the normal or astronomic high tide from the observed storm tide.

**Storm Warning:**
A warning of 1-minute sustained surface winds of 48 knots (55 mph or 88 km/hr) or greater, predicted or occurring, not directly associated with tropical cyclones.

**Tropical Depression:**
A tropical cyclone in which the maximum sustained surface wind speed (using the U.S. 1-minute average) is 33 knots (38 mph or 62 km/hr) or less.

**Tropical Disturbance:**
A discrete tropical weather system of apparently organized convection -- generally 100 to 300 nautical miles in diameter -- originating in the tropics or subtropics, having a non-frontal migratory character, and maintaining its identity for 24 hours or more. It may or may not be associated with a detectable perturbation of the wind field.

**Tropical Storm:**
A tropical cyclone in which the maximum sustained surface wind speed (using the U.S. 1-minute average) ranges from 34 knots (39 mph or 63 km/hr) to 63 knots (73 mph or 118 km/hr).

**Tropical Storm Warning:**
A warning that sustained winds within the range of 34 to 63 knots (39 to 73 mph or 63 to 118 km/hr) associated with a tropical cyclone are expected in a specified coastal area within 24 hours or less.

**Tropical Storm Watch:**
An announcement for specific coastal areas that tropical storm conditions are possible within 36 hours.

**Tropical Wave:**
A trough or cyclonic curvature maximum in the trade-wind easterlies. The wave may reach maximum amplitude in the lower middle troposphere.
The CARICAD Horizon is a regular publication of the Caribbean Centre for Development Administration (CARICAD).

The Horizon has superseded the “Chronicle”. The Editor-in-Chief is CARICAD’s Executive Director, Devon Rowe.

The Production Team comprises: Franklyn Michael, Rosemund Warrington, Dr. Lois Parkes, Trudy Waterman, Angela Eversley and Petra Emmanuel.

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DISCLAIMER FOR HORIZON HURRICANE EDITION

The information provided in this newsletter is set in the context of CARICAD’S Memorandum of Understanding (MOU) with CDEMA. The MOU was signed in 2016. It is stated in the Rationale that both CARICAD and CDEMA have the ultimate aim of facilitating and supporting sustainable development and on improving capacity within member states. The two institutions also agreed to continue joint efforts to mainstream Disaster Risk Reduction. Therefore, the contents of this newsletter are not intended to replace, duplicate or supplant any information provided by CDEMA or the National Disaster Offices of CARICAD member states. It is intended to reinforce their efforts.