

May, 2016 Volume 2, Issue 2



Department of Disaster Management and Emergencies



# DDME NEWSLETTER

**P**REPAREDNESS  
**R**ELIABILITY  
**E**FFICIENCY  
**P**EOPLE CENTERED  
**A**CCOUNTABILITY  
**R**ESOURCEFULNESS  
**E**FFECTIVENESS

**P.R.E.P.A.R.E.**  
is the core value  
for managing disasters

***HURRICANE  
SEASON 2016***



**PREPARING  
MAKES SENSE**

...

**THERE IS  
NO REASON  
NOT TO  
PREPARE!!!**

*"Building Resilience throughout the Turks and Caicos Islands"*



# DDME Calendar of Events 2016

11-16 January, 2016	Earthquake and Tsunami Awareness Week
16 January, 2016	VCA (Part 2) – Kew North Caicos (A TCI Red Cross and DDME partnership)
23 January, 2016	VC (Part 2) – Back Salina Grand Turk (A TCI Red Cross and DDME partnership)
1 February, 2016	Training: How to Conduct Exercises
1-5 February, 2016	Training: CERT Salt Cay
17 March, 2016	Caribe Wave / Lantex 16
2 April, 2016	VCA (Part 4) - Back Salina Grand Turk (A TCI Red Cross and DDME partnership)
18-22 April, 2016	7th Annual TAC Meeting
1-31 May, 2016	Hurricane Preparedness Month <ul style="list-style-type: none"><li>- Church Service (Providenciales)</li><li>- Launch of Hurricane Preparedness Month</li><li>- Stakeholder meeting in all islands</li><li>- Community Outreach Programs</li><li>- Primary School Art Competition</li><li>- Disaster Preparedness Press Conference</li><li>- Newspaper supplements</li><li>- Publication of DDME Quarterly Newsletter</li><li>- Hurricane Culinary Competition</li><li>- Disaster Subcommittee Meetings</li></ul>
9-13 May, 2016	Governor's Hurricane Conference, Orlando
16-20 May, 2016	Florida State Hurricane Exercise
23 – 27 May, 2016	Pre-Hurricane Disaster Managers Meeting Miami
June, 2016	TCI State of Preparedness Meeting
June, 2016	Trade Winds Exercise (Grenada)
6-10 June, 2016	Training: CERT Back Salina, Grand Turk (A TCI Red Cross and DDME partnership)
1- 30 September, 2016	Disaster Preparedness Month
5 December 2016	International Volunteers Day

# DDME Director's Notes

*Dear residents/visitors/  
stakeholders,*

This year, scientists are predicting an average hurricane season, which means we can expect approximately 12 named storms, 5 hurricanes and 2 storms of category 3 and above. The predictions are only a guide as to what, on average, the region can expect. However, what the scientists are unable to tell us is when, where, who, how the TCI will be impacted and if it definitely will be impacted. It therefore means that as a nation, we need to ensure that we are always in a state of readiness in the event of impact. Let us be reminded and be guided by the fact that it is never too early to prepare for an emergency. Since hurricane Ike in 2008, the TCI has been spared from direct impact of a major hurricane of category 3 and above. However, we have experienced several smaller hurricanes and tropical storms which have caused the TCI millions of dollars in response and recovery.

Given the fact that the TCI is located in the hurricane belt and therefore has a history of experiencing hurricanes and tropical storms, residents in the TCI should have a hurricane plan for their homes and their businesses and be ready to respond quickly and effectively even if given short notice. Thanks to advancement in technology we can now be better prepared for the storms. Technol-

ogy has resulted in improved forecasting and provided us with the capacity to better model impacts from storms and related hazards such as storm surges. By the same token, we now also have the ability to disseminate information and provide warnings in a more timely manner. This does not mean we should let our guards down. Every prediction or forecast has an element of error, or in other words, an element of unpredictability.

DDME and its partners have continued their efforts to make the TCI more resilient to the impacts of tropical cyclones and their increasing intensities which result from a changing climate. I would therefore like to remind our readers that preparation for emergencies is a continuous process and that the best time to prepare for a disaster is well before it happens.

I am therefore pleased to share with you our second newsletter for 2016 which focuses on hurricane preparedness. I hope you will find it interesting and informative.

I would like to thank you for your interest, especially if you or your agency contributed to this issue of the newsletter. We value your feedback so please let us know your thoughts or indeed if you want to see any specific item in the next issue. Lastly, thank you to our partners for their continued support.



## About Us

DDME mandate has been expanded to a more comprehensive approach to Disaster Management to include all hazards the islands are vulnerable too. It activities now cover all phases of Disaster Management including Disaster Risk Reduction, the preparation of Flood Hazard and Vulnerability Studies, Planning and Training and Exercising and providing technical assistance.

### Vision Statement

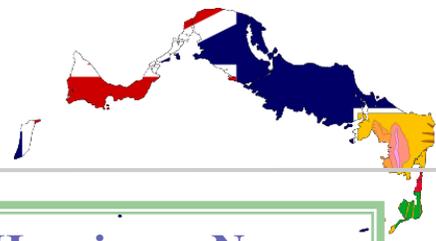
Building a Disaster Resilient Nation in the Turks and Caicos Islands through Comprehensive Disaster Management.

### Mission Statement

To Develop and maintain a culture of Comprehensive Disaster Management among all sectors of the society within the Turks and Caicos Islands in order to save lives and protect property from natural and technological hazards.

**GET INVOLVE !  
VOLUNTEER  
TODAY!**

*"Building Resilience throughout the Turks and Caicos Islands"*



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## 2016 Hurricane Names

Alex	Lisa
Bonnie	Matthew
Colin	Nicole
Danielle	Otto
Earl	Paula
Fiona	Richard
Gaston	Shary
Hermine	Tobias
Ian	Virginie
Julia	Walter
Karl	

## KNOW YOUR EMERGENCY SHELTERS

Contact the Department of Disaster Management and Emergencies at (649) 946 – 2177 or (649) 946 4521/2177 for the closest shelter.



**Turks & Caicos Islands Government**  
**Department of Disaster Management and Emergencies**

For more information contact us at:  
**WEBSITE:** [www.gov.tc/DDME](http://www.gov.tc/DDME)  
**TWITTER:** [DDME.TC](https://twitter.com/DDME.TC)  
**FACEBOOK:** [www.facebook.com/TCI.DDME](https://www.facebook.com/TCI.DDME)

# Hurricane Season

# 2016

Preparing makes sense...  
 There is **NO REASON NOT...**  
 to **PREPARE!**

# Message from the Governor Turks and Caicos Islands

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*H. E. Peter Beckingham*



“I am pleased that the Disaster Management and Emergencies Department are beginning to prepare already for the hurricane season – although it only seems like yesterday we were tracking tropical storms near Turks and Caicos last year!

“It’s a well worn theme, but preparedness is crucial for every island in this region. I have met recently with colleagues from across the Caribbean OTs to discuss their preparedness efforts and best practices.

“But it is clear that all of us, and especially those with hurricane preparedness responsibilities in the public sector, should take time during our work to consider what we need to do for our offices and departments. I look forward to meeting officials across the public service later this year to review their preparations. And it is vital that we all take every measure possible to ensure that our families and homes are safe.

“With the visit in March of an EU team to look at the homes repaired and re-built following Hurricane Ike we have a reminder of how devastating a hurricane can be. Please take the advanced notice from DDME seriously, and look carefully at how you can support their efforts to ensure TCI is as well prepared as any island in the Caribbean for a hurricane.”

Thank you – Peter Beckingham



## Message from the Minister of Home Affairs, Transportation and Communication Turks and Caicos Islands

*With responsibility for the Department of Disaster Management & Emergencies*

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*Hon. George Lightbourne*

My people of the Turks and Caicos Islands, as we approach the start of another Hurricane Season and as the Minister with responsibility for Disaster Management and Emergencies, I encourage you to make preparation for the 2016 season a priority.

As a government, we are cognizant of our obligation to ensure the safety of our people and we do not take it lightly; but we cannot do it alone. It must be a combined effort, you the public must play your role and the government through the Department will play its role. I therefore call on you to begin your individual preparations, realising that 'it only takes one storm to impact us and bring us to our knees.'

Through the department, I pledge my continued support to ensuring that the necessary resources are made available to the Director and team as they lead the charge to ensure that adequate steps are taken towards, education, preparation and mitigation of the effects of not just hurricanes but other natural and man-made disasters.

The Department is well advanced in preparation for this season having already ensured that each island has a Community Emergency Response Team; that shelter managers in all islands are well trained and a number of workshops have been held for both public and private sector stakeholders to continue to educate them.

I again urge residents to begin to update their insurance policies and to develop an individual family disaster plan giving consideration to your elderly, infants and pets. Ensure that all your family's basic needs are met, i.e. food, clothing, medication, water. Secure important documents and keep emergency numbers easily accessible.



Message from the Minister of  
Home Affairs, Transportation and Communication  
Turks and Caicos Islands

*With responsibility for the Department of Disaster Management & Emergencies*

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*Hon. George Lightbourne*

Ensure that you follow any instructions given by the department and take every precaution possible to secure your property and the lives of your family members. Complacency is not an option my people.

So let us not be caught off guard; “**Preparedness makes sense...there is no reason not to prepare**” if we are going to reduce the damage and prevent any unnecessary loss of life during this season.

May God continue to protect these beautiful islands but let us do our part to ensure our safety also.

*“Building Resilience throughout the Turks and Caicos Islands”*



# Message from Permanent Secretary of Home Affairs, Transportation and Communication Turks and Caicos Islands

*With responsibility for the Department of Disaster Management & Emergencies*

*Mr. Ian Astwood*



As the 2016 Hurricane Season is upon us, I would like to take this opportunity to remind the people of the Turks and Caicos Islands that the time to prepare for a

hurricane or any hazard is before an event. According to the Department of Disaster Management and Emergencies (DDME) theme for Hurricane Preparedness Month (HPM) and for the 2016 Hurricane Season, *"Preparedness Makes Sense...There is no reason not to Prepare"*. This theme is current and relevant to our local context since the TCI is located within the hurricane belt and are vulnerable to hurricanes and tropical storms that track in the Atlantic Ocean.

Regardless of the number of hurricanes or storms predicted by the scientist—whether it is a normal, active or below normal season—residents in the TCI cannot afford to become complacent in their preparedness. There are actions that residents can undertake long before

a storm threatens the TCI to ensure their safety and that of their family and to protect their homes and businesses. Actions such as:

- Begin to assess your surroundings
- Remove any loose items that could act as missiles during a storm;
- Check your shutters,
- Prepare your emergency packs,
- Update your insurance policy,
- Begin to store at least one week of rations and
- Pay close attention to any updates and other information coming from the department.

The DDME is actively working to ensure preparedness on their part, at the Government and community level. However I wish to also encourage you to play your part in ensuring that your household and businesses are also prepared to respond and to recovery quickly if impacted. Please feel free to contact the DDME for more information or advice on any aspect of your preparation.

Turks and Caicos let us do our part as we help to mitigate the effects of any disasters this hurricane season, by **BEING PREPARED**.

# Micro-insurance: A Strategy for Enhancing Disaster Recovery in the Turks and Caicos Islands

Dr Balfour Spence, PhD

Applied Disaster and Emergency Studies (ADES) Department  
Brandon University, Brandon MB, Canada R7A 6A9



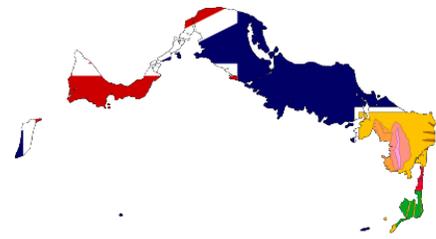
## *Introduction*

Like other Participating States of the Caribbean Disaster Emergency Management Agency (CDEMA-PS), the Turks and Caicos Islands (TCI) are vulnerable to impacts from a wide range of natural and anthropogenic hazards. In recent years, this vulnerability is being exacerbated by climate-change induced sea-level rise and more frequent and extreme hydro-meteorological events which erode livelihood capacities, economic progress and efforts at environmental sustainability. Within the social context of disasters, these impacts are heavily skewed towards low-income households, particularly those in rural-sector economic activities and the informal sector of urban landscapes.

As is also typical of most CDEMA-PS, emergency insurance especially among the most vulnerable groups in the TCI is virtually absent. In the absence of this critical disaster risk transfer mechanism, the public coffer is saddled with the bulk of the disaster recovery cost. In the financial resource-scarce environment which increasingly typifies the TCI, the recovery process is slowed and livelihood continuity and sustainability jeopardized.

## *A Micro-insurance Solution*

Irrespective of the model used, disaster insurance is not intended to reduce impact hazards but rather, to provide indemnification against losses through the pooling of risk in exchange for payment of a premium. Traditional disaster insurance has for the most part remained inaccessible to low-income peoples and livelihood sectors in the TCI and indeed, the wider Caribbean region owing to unaffordability of premiums. Micro-insurance is distinct from traditional disaster insurance in that it is intended to provide accessible and affordable coverage to low-income households and through the provision of timely financial assistance, reduce overall social impact of hazards (Mechler et al, 2006). However, in Small Island Developing States (SIDS) such as the TCI, viability of micro-insurance interventions remain tenuous owing to the covariant nature of risk, where a hazard can affect entire risk-pools simultaneously (Spence, 2015).



One of the primary benefits of micro-insurance is that it facilitates poor households in breaking the cycle of poverty that stems from recurrent hazard impact on a fragile economic base by allowing access to post-disaster liquidity (Fritz Institute, 2005). This liquidity enhances post-disaster creditworthiness and allows investment in mitigation measures to bolster against recurrent events especially in cases where the insurer provides premium-reduction incentives for risk reduction behaviour. Micro-insurance also allows poor households to take ownership of their capacity to bounce back from the impact of hazards instead of being dependent on the generosity of government and donors as de facto insurers of the poor (Spence, 2015.)

#### *Key Considerations for Micro-insurance Intervention in TCI*

Viability criteria that can inform effectiveness of a micro-insurance risk transfer model for disaster risk reduction and recovery in the TCI include Potential contribution of the intervention to risk reduction, financial robustness of the intervention, affordability and Governance.

With regard to contribution to risk reduction, there are two salient questions in this regard. First, can/will the intervention contribute to sustainable disaster risk reduction by reducing vulnerability? And secondly, does it promote preventive measures that will influence immediate disaster losses? These questions are pertinent because it can be argued that insurance premiums divert funds which could otherwise be used for preventive en-

agements.

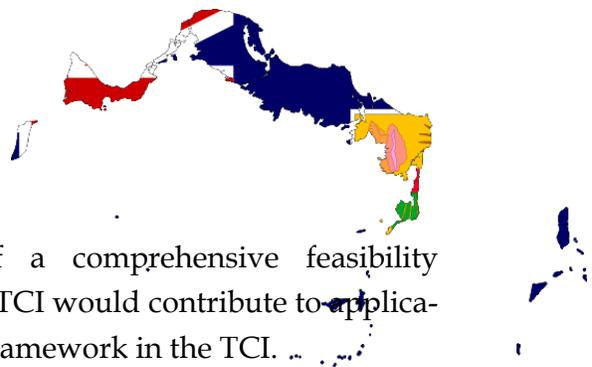
It is more difficult to ensure financial robustness of micro-insurance interventions that cover covariant losses, i.e. those that affect a large number of persons at the same time, than those covering independent losses. For instance, a hurricane passing over the TCI is very likely to impact all persons and all insured in the TCI.

The provision of services to people who do not have access to regular insurance is central to the design of micro-insurance interventions. Affordability of premiums is therefore a key consideration in product design. A micro-insurance model developed for the British Virgin Islands has successfully addressed this affordability issue and could be used as a framework for the TCI.

The risk reduction capacity, financial robustness and affordability of micro-insurance interventions for disaster risk reduction (DRR) are a function of effectiveness of governance. Good governance relates to legitimacy and credibility of social institutions and procedures responsible for development, implementation and regulation of insurance schemes (Spence, 2015)

#### *A Proposed Micro-insurance Framework for TCI*

A proposed micro-insurance framework for the TCI must of necessity be the outcome of a rigorous feasibility study that addresses what agencies/institutions will be major players in provision of coverage, which hazard(s) are to be covered, livelihood/social sector activities to be covered and the type of coverage to be provided.



The micro-insurance model which was developed and implemented in the BVI has informed the proposal of a more widely-scaled framework intervention for the CDEMA-PS (Figure 1). The framework is premised on an index-based (parametric) micro-insurance mechanism that is contracted against an environmental trigger; thereby eliminating costs associated risk and loss assessments. It also provides the opportunity for government, international donors, NGOs and the private sector to be engaged in prod-

uct delivery.

Outcome of a comprehensive feasibility study in the TCI would contribute to application of this framework in the TCI.

In summary, the need for a disaster risk transfer mechanism to enhance the risk reduction and recovery process in the TCI is underscored. Such an intervention would constitute a win-win situation for the Government as well as the insured.

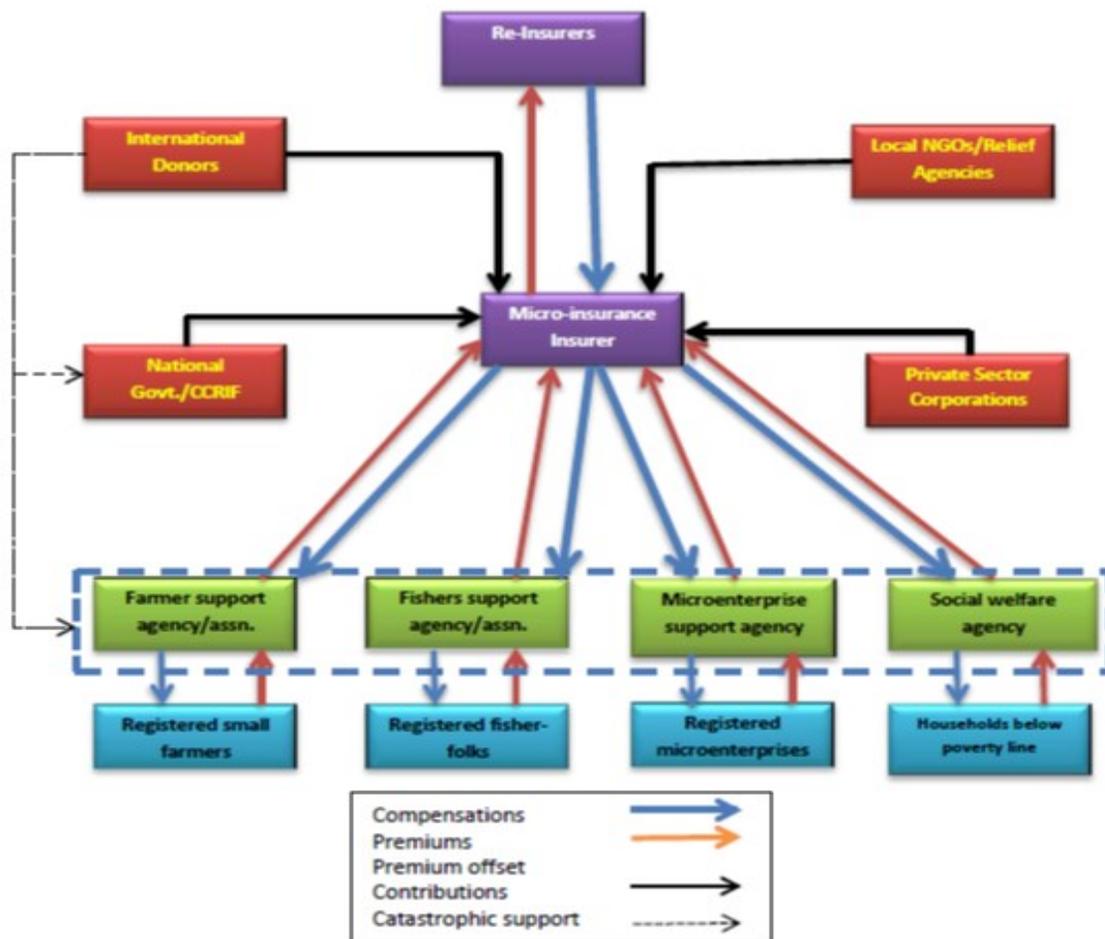
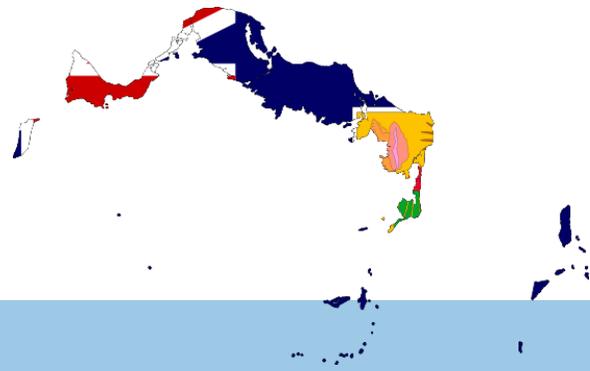


Figure 1: Conceptual Framework for Micro-insurance Solution in CARICOM States



# Flood Management



*"Building Resilience throughout the Turks and Caicos Islands"*

# Flood Risk Hazard Management

Norman A. Watts

Advisor to Public Works Department

Turks & Caicos Islands Government

**F**looding affects almost everyone in the Turks and Caicos Islands. Sometimes it causes only mild inconvenience but it can also demoralizes the community, affect businesses, cause accidents and in extreme cases even lead to death. It can be the result of outside factors such as weather, rainfall, run-off, storm surge and climate change but also preventable factors such as poor management and maintenance of drainage measures and irresponsible development.

## *Flood Risk*

The risk of flooding can be identified and determined by engineers and scientists by studying the physical, structural and cultural makeup of flood-threatened areas in conjunction with the climatic and hydrological characteristics that lead to flooding conditions. However, a number of assumptions have to be made as there is often insufficient information to determine the precise effect of these factors. It is particularly difficult to predict the effects of future development or climate change.

Vulnerability is also an important consideration. The affected area may be very small, comprising one or two houses or a short length of road. On the other hand there may be far more extensive damage or disruption to property, airports and roads.

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FLOODING FROM HURRICANE CRISTOBAL 2014



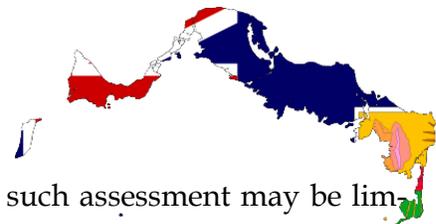
Fortunately TCI is low-lying so it is unusual and almost impossible for the country to suffer a major flooding event causing death or injury, such as that experienced by St Lucia on Christmas Eve 2013, which completely washed out roads and villages.

However, being low-lying means that the flooding encountered in TCI is often more disruptive to businesses and livelihoods as it can persist for long periods. Flooding is also exacerbated by tidal surges which do not allow water to dissipate. As recently as 2015 Hurricane Joaquin produced a tidal surge which remained for several days while it was building over the Bahamas. During these times water is not able to flow into the sea due to the high tides and often the surge flows inland causing further flooding of the low-lying areas.

### *Assessment of Risk*

Before we can develop effective solutions and mitigation measures we must first identify the scale of the risk. Risk can be assessed from historical information but also calculated from rainfall and run-off ensuring that allowance is made for changes in circumstances such as future development, climate change and the influence of sea level rise.

The effect of the risk must also be determined, with the specific intention of identifying the higher risk areas, giving sufficient information to be able to identify the hazards and to manage or mitigate against the risk.



The scope of such assessment may be limited by budgetary constraints from both developers and Government but it is important to determine the economics of developing a property with adequate provision of drainage facilities and the protection of valuable assets.

The ultimate aim in assessing risk is to try to reduce it by management and mitigation.

### *Responsibility*

**Management of the Risk** is the responsibility of everyone from the potential flood victim to developers and the local government.

⇒ Flood victims can be vigilant and aware of the possible level of flood water and can protect themselves against it. Home owners can raise their belongings off the floor or remove them when they receive enough notice. Road users can make sure to drive slowly and carefully through floods. If there is a possibility of relocating, rebuilding or diverting this could be considered.

⇒ Developers are accountable for creating the additional run-off from their sites and are legally responsible for dealing with it. Any additional costs involved in managing the flood risk should be borne by the developer and not by the Government or the general public.



Know Your Flood Risk

⇒ Governments can identify policy and plans with support in the form of laws and regulations that control the increase in the run-off and minimise the impact on the rest of the community. They can provide communal drainage facilities that improve drainage as well as controlling and protecting municipal facilities at risk such as roads, hospitals, clinics and airports. Governments can also alert the general public to potential storms and make them aware of potential flooding situations, giving assessments of possible flood levels.

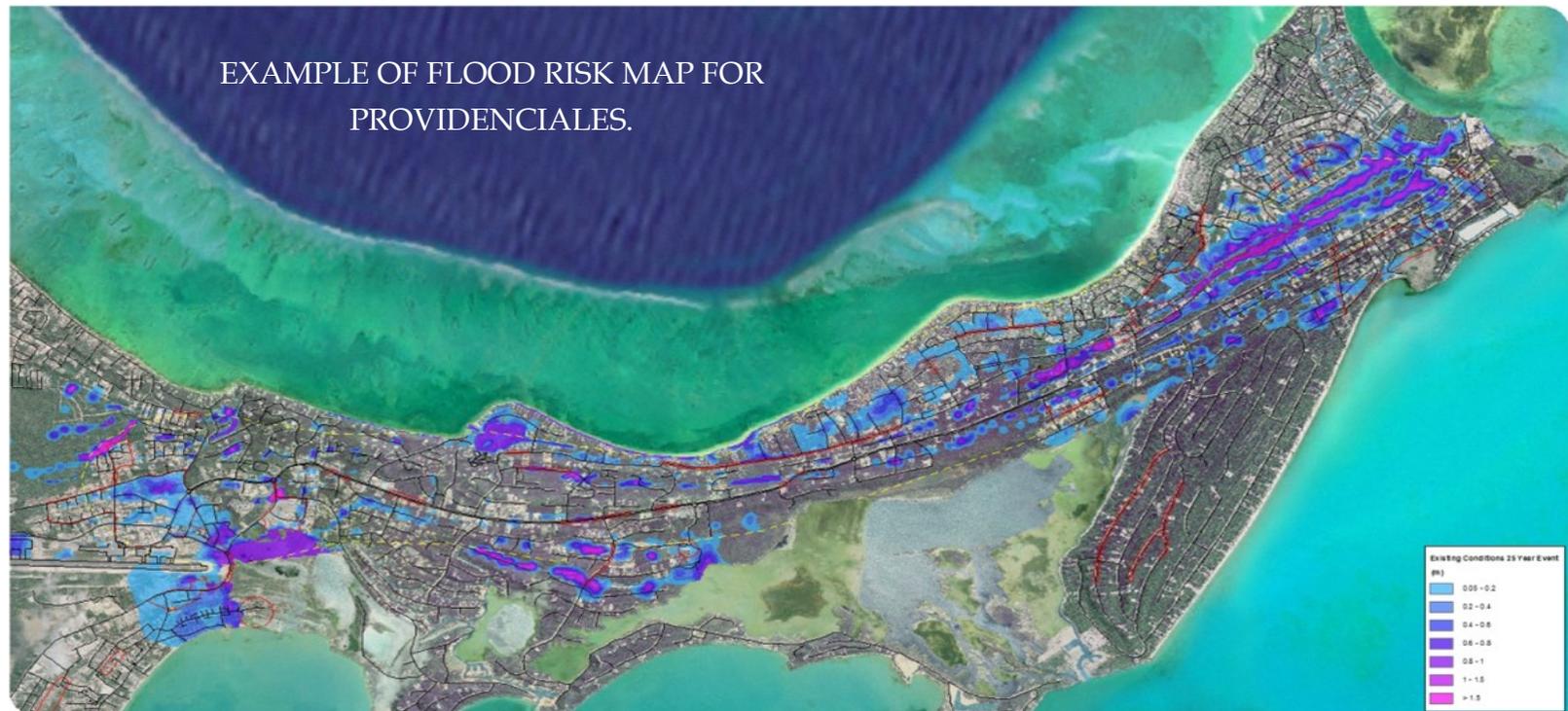
Recently the *Turks and Caicos Islands Government*, with the assistance of the *Caribbean Development Bank*, has funded a *Flood Risk Management Study* to identify, inventory and assess the key contributing elements defining flood risk. Models and calculations have been prepared to en-

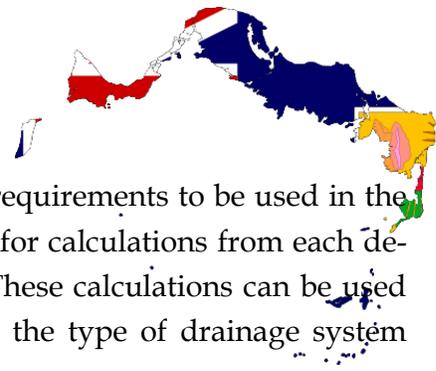
able more accurate determination of the risks of flooding and the means to mitigate them.

**Education and Public Awareness** - Area flood risk management maps have been prepared and detailed in the Flood Risk Management Study and are currently held with the Department of Disaster Management and Emergencies (DDME). The example shown below gives the areas at risk from flooding as well as the amount of flooding expected in an event. These can be distributed to the public and displayed in prominent public places. Public service announcements and information sheets on managing the flood risk are other ways of informing the public. DDME often arrange to send out messages by text as well as other media.



EXAMPLE OF FLOOD RISK MAP FOR PROVIDENCIALES.





### *Mitigation options*

The ideal way to mitigate against flooding is by dealing with the water and disposing of it, however this is not always economic and other action has to be taken as follows.

#### Development Control

The islands of Turks and Caicos are developing at an incredible pace. This is good and positive for the country but the TCIG should be aware of the related negative effects of the increased run-off and the risk of flooding.

**Future development is the greatest calculable effect.** It is very important on Turks and Caicos to restrict run-off from new development. By taking professional advice and by implementing timely and responsible measures there is no reason why this risk cannot be managed effectively while the country continues to develop and flourish. Infilling of land which previously flooded only shifts the problem elsewhere rather than solving it. Some developers tend to raise the level of the whole site which not only increases the run-off because the land is less permeable but also eliminates all the storage capacity on the site, thereby shifting the potential flooding problem to neighbouring properties. Building on undeveloped plots and paving them without allowing for increased run-off is irresponsible and illegal. The legal requirement in the TCI is to deal with the run-off within the property boundaries but this is not always necessarily followed properly. The recent study gave guide-

lines on the requirements to be used in the design stage for calculations from each development. These calculations can be used to determine the type of drainage system to install.

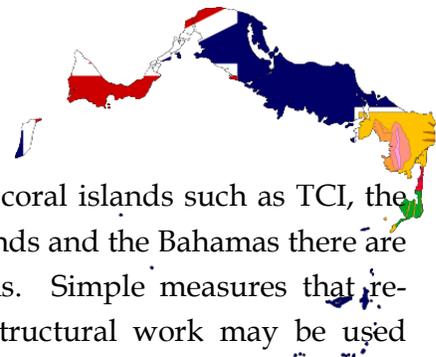
The study noted that **'Urbanisation without the benefit of formal stormwater infrastructure in place is very dangerous and should be discouraged. The proper infrastructure should be in place whether it be roads, services or drainage.'**

#### Engineering solutions

There are a number of options for engineering solutions and the key is to find the most cost effective solutions. Good Flood Risk Management should focus on resilience after a hurricane or heavy rainfall event - ie aim to ensure that a facility is still useable, so that main roads remain open and key buildings such as shelters and hospitals continue to be accessible and functioning at the cheapest possible price.

To cater for resilience in buildings we use 'resilient' materials such as concrete, wood, shingles and aluminium to allow the building to remain usable after rain or other inclement weather and to last for a prolonged period, usually 50 years as a minimum.

It is more difficult to guarantee resilience when dealing with flood prevention. In particular, resilience has not always been considered in road construction or the level at which buildings are constructed and in some cases even their location.



Road design in the past tended not to consider surface water disposal, sea level rise, climate change or potential development which will all increase the run off and result in consequential flooding. In the past roads were not impermeable (with a black top), there was less development and more empty land for flood water to flow onto. But now the effects of these factors need to be considered.

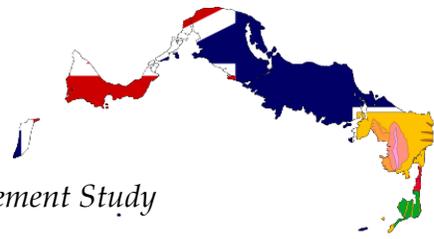
Once a structure has been built, particularly of concrete construction, it is effectively impossible to move it. Therefore, if there is any change in the level of flood water (normally due to an increase in run off or drainage from development in the catchment or from neighbouring properties) then the original building may be subject to higher flood levels than previously experienced and expected. Therefore it is very important to try and plan for the future even though the situation may be unpredictable and difficult to determine precisely.

The TCI has no natural water courses or rivers. This could be considered a disadvantage as flood water cannot flow into the rivers which are natural conduits for the flood water and can be enhanced and improved to increase the capacity. However the advantage is that it does not suffer from catastrophes such as flash floods, landslides and mud flows as shown above in St Lucia. These are more common on volcanic Islands such as Dominica and St Kitts.

In low-lying coral islands such as TCI, the Cayman Islands and the Bahamas there are fewer options. Simple measures that require little structural work may be used such as earth drainage and channels. Another alternative might be more extensive soakaways or vertical wells. Sea outfalls and pumping stations are also used, often with the enhancement of a retention basin. Sterilizing and allocation of sufficient land is required for these drainage facilities to be constructed. The simplest and most effective solution is to calculate a flood level and build above that level. However as noted above this is impractical for existing buildings which cannot be moved unless they are demolished and rebuilt. Road design may be difficult due to lack of space in the road reserve and impinging on low-lying buildings. **Therefore possible mechanisms that could be employed include:**

- ⇒ Earth drains and channels
- ⇒ Soakaways and vertical wells
- ⇒ Seaoutfalls and pumping stations
- ⇒ Retention basins
- ⇒ Elevating all roads, buildings and other facilities above the flood level





### *Conclusions and Recommendations from the Flood Risk Management Study*

Most countries, even those which are well-developed, suffer from some form of flooding. As seen in the news, many countries do not have the resources to deal with these problems or they have been overtaken by events outside their control. There are other countries where a robust policy on flood prevention has been in place for hundreds of years and is still being developed and modified. Even though TCI has its own peculiarities **it is important that TCI learns from the experiences and practices of other countries.** In preparing the Flood Risk Management Study Report the Consultant also selected other jurisdictions for case studies to provide insight into flood risk management in other countries in considering their recommendations.

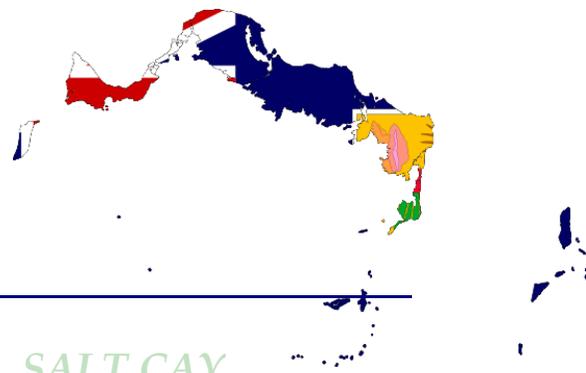
#### **RECOMMENDATIONS FROM THE FLOOD RISK MANAGEMENT STUDY REPORT ARE AS FOLLOWS:**

- Policy and other 'soft' solutions decisions:
  - ❑ Recommended design and construction standards
  - ❑ Surface Water Drainage Policy including Land use planning and Enforcement of planning laws and regulations
  - ❑ Public Education outreach and awareness of the flood risks
  - ❑ Implementation of a Flood Emergency Response and Recovery Plan including Emergency Resilient Detour routes between critical facilities.
  - ❑ Capacity strengthening in various Government departments to implement the above.
- Engineering solutions:
  - ❑ Equipment and resources for collection of data to enhance design capability such as ocean, sea level and rainfall monitoring (at an estimated cost of \$26k)
  - ❑ Maintenance and rehabilitation of current drainage structures.
  - ❑ Capital Works to the value of \$23m including installation of storm drains pump stations and Storage facilities.

*The full report may be obtained from the Ministry of Infrastructure, Housing and Planning, Public Works Department.*

# FLOOD PRONE AREAS

## Turks and Caicos Islands



### PROVIDENCIALES

- ◆ Wheeland, Blue Hills
- ◆ Blue Hills (behind Old Clinic)
- ◆ Kew Town
- ◆ Millennium Highway, Bible Street
- ◆ Downtown
- ◆ Bypass going into Five Cays and some areas of Five Cays
- ◆ Portions of Leeward Highway (e.g. areas of Quality Supermarket, Projitech, Caicos Lodge)
- ◆ Portions of the Lower Bight
- ◆ Juba Sound (valley areas)
- ◆ Sections of Grace Bay (e.g. Coco Bistro and Casablanca areas)
- ◆ Portions of Long Bay and Long Bay Hills
- ◆ Sections through Leeward Gate
- ◆ Areas of Leeward Palms

### GRAND TURK

- ◆ West Road
- ◆ North Back Salina (The Garden)
- ◆ Palm Grove
- ◆ The Salinas
- ◆ South Back Salina (Virgil's Square)
- ◆ The Quarry
- ◆ Central Creek
- ◆ North Creek
- ◆ Close Haul Road

### SALT CAY

- ◆ Deans Dock Road
- ◆ Airport Road
- ◆ Portion of Folly Road

### SOUTH CAICOS

- ◆ The Flats
- ◆ The Salinas, east of Primary School
- ◆ East Canal
- ◆ Turtle Crawl

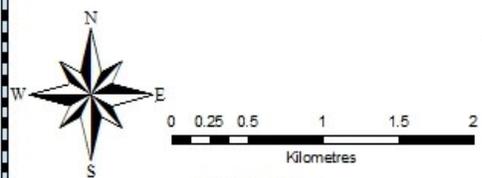
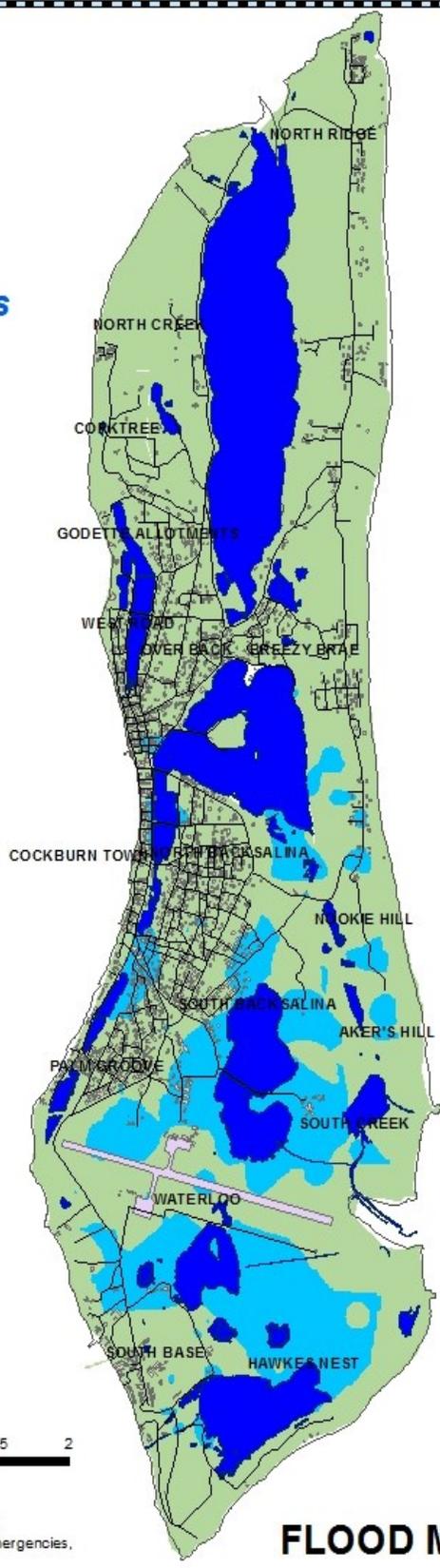
### NORTH CAICOS

- ◆ Bottle Creek
- ◆ Kew Settlement
- ◆ Whitby





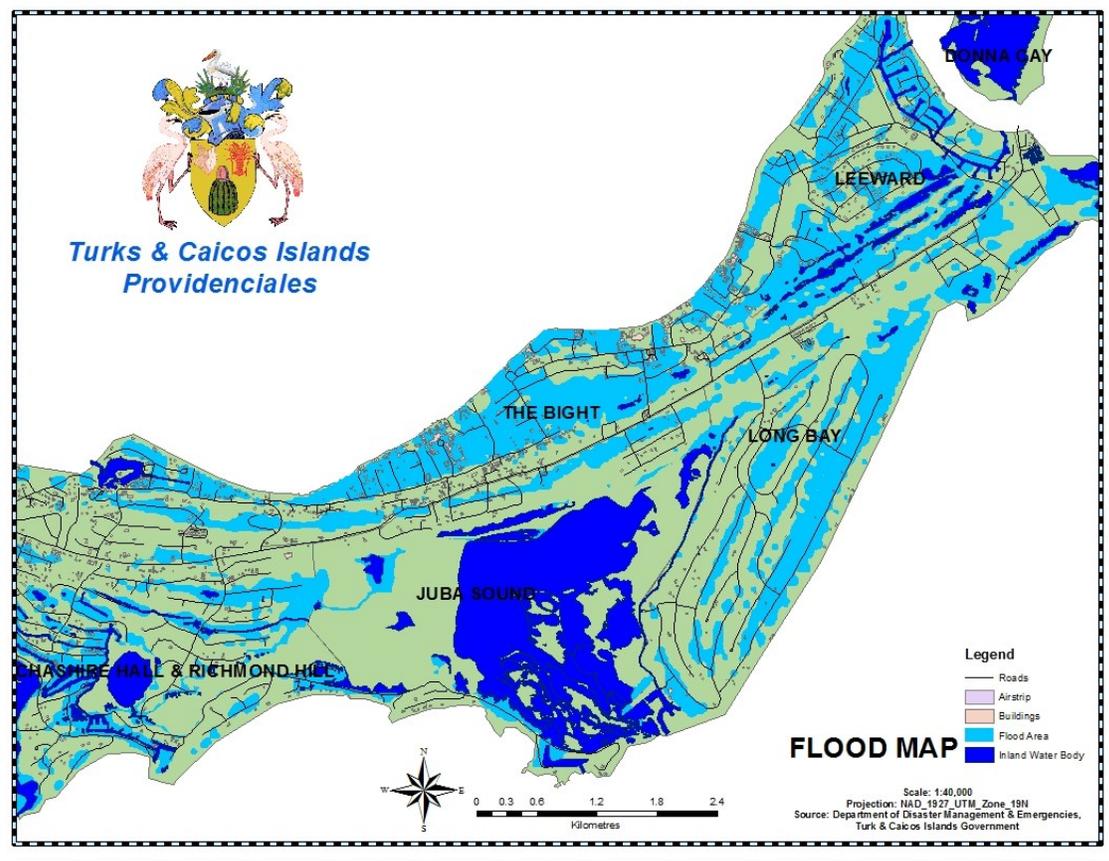
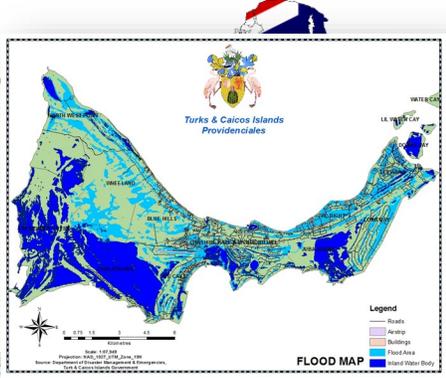
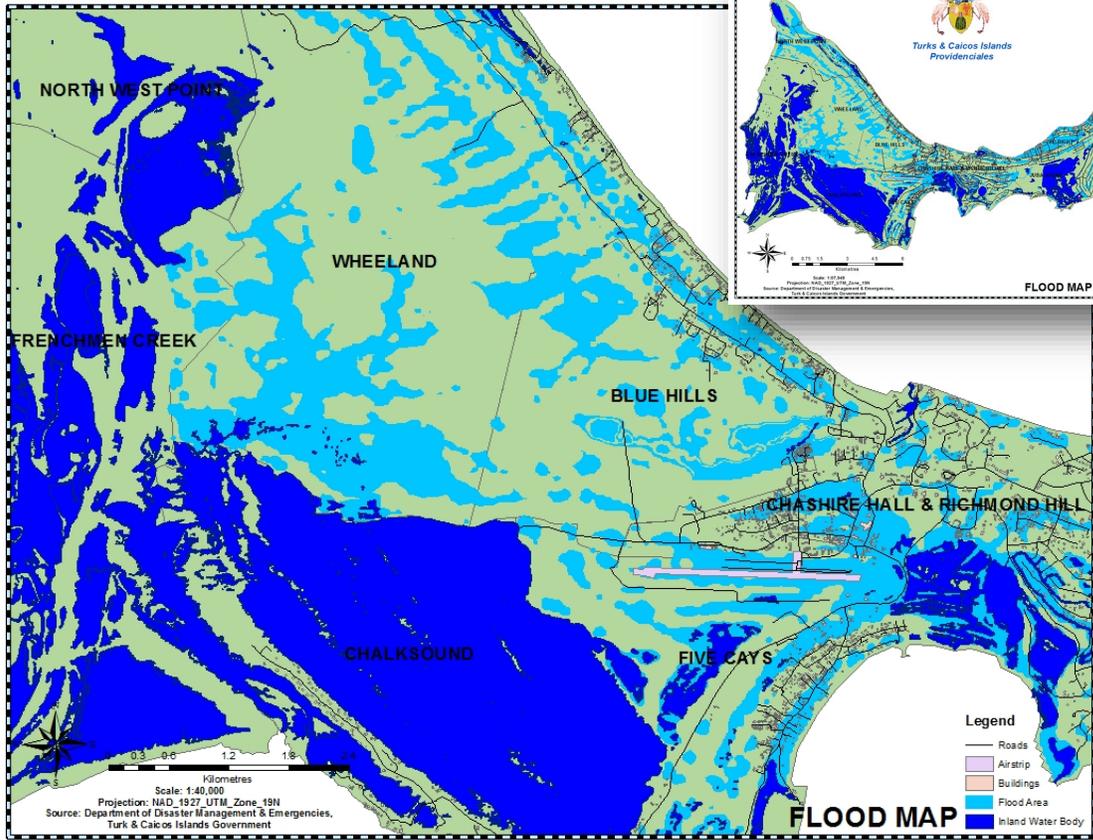
# Turks & Caicos Islands Grand Turk



Scale: 1:38,078  
Projection: NAD\_1927\_UTM\_Zone\_19N  
Source: Department of Disaster Management & Emergencies,  
Turks & Caicos Islands Government

- Legend**
- Roads
  - Airstrip
  - Buildings
  - Flood Area
  - Inland Water Body

## FLOOD MAP



# **HURRICANE PREPAREDNESS MONTH**

## **May 2016**



*Department of Disaster Management and Emergencies  
Turks & Caicos Islands Government*

***Preparing MAKES SENSE...There is NO REASON NOT to PREPARE!!!***

# **Sector Contributions**

*"Building Resilience throughout the Turks and Caicos Islands"*

# Tropical Shipping

## The Importance of Public-Private Partnership In Disaster Management

**“P**reparing Makes Sense...there is no reason not to prepare !” This is the theme chosen for the 2016 Department of Disaster Management and Emergencies awareness campaign and it is a rather sobering thought and should serve as a reminder to all of who live, work or play in the Caribbean, not only the Turks and Caicos Islands. I congratulate you Dr. Virginia Clerveaux and your Team for starting this Awareness Campaign early before the hurricane season begins.

Our beautiful Caribbean islands are very beguiling and some of us forget at times that this beguiling beauty can be treacherous when it comes to the weather patterns and natural disasters. We sometimes get complacent and are lulled into thinking “nothing will happen” to disrupt our beautiful island life style and so we don’t prepare. But, let’s be reminded of the recent impact of Tropical Storm Erika on Dominica, Hurricane Ivan in Grenada and the Caymans, Hurricane Hugo in 1989 on St. Croix and some of the other devastating disasters like the earthquake in Haiti, floods in St. Lucia and volcanic incidents in Monserrat. I am honored to work for a company that has embraced the idea of public -partnership in disaster management with the people in the countries



where we live, work and play. Tropical Shipping has adopted as a corporate initiative the sponsoring of annual Disaster Management Workshop series in partnership with the local Disaster Management Agency.

We do believe however, that for any community’s disaster management program to be effective, the private sector must be welcomed to the table with the public sector starting at the beginning of the disaster management cycle. Tropical Shipping’s leadership team have been committed to conducting these annual Workshops for years as a way of encouraging the open discourse on community preparedness and resiliency thru collaboration with partners like the Chambers of Commerce, the Caribbean Central America Action, the Caribbean Hotel and Tourism Association and the DDME. We hope to achieve this readiness and preparedness for disasters thru these Workshop/Summits and in partnership with each community and its residents who bind together to ride out the storm and build up the capacity to recover quickly.

This year our Workshop series theme is “Building Risk Aware and Resilient Communities” which is a take-off from the recently held Comprehensive Disaster Management strategy meeting under the auspices of CDEMA. **We are honored to join their efforts in there endeavor to bring the private sector to the table way in advance of a declared disaster in the Region. We are encouraging local businesses in the Turks and Caicos Island to join the efforts in building a risk aware and resilient community now!**

## Public Private Sector Partnership: An imperative for disaster risk management in the TCI

While the concept of Public Private Sector Partnership varies according to jurisdictions and as such cannot be universally defined, the expected outcome of these types of partnerships is indeed universal in construct. Irrespective of where it occurs and the form it takes, public private sector partnerships for disaster management is intended to build resilience, reduce disaster risk and facilitate smooth and timely recovery following impacts from hazards.

Building partnerships between the government (public) and non-government (private) sectors is widely accepted as crucial to achieving sustainable, disaster-resilient communities. Disaster management is everybody's business, as such Government cannot be held totally accountable for reducing national disaster risk. Neither should the private sector be made to bear the burden of disaster risk reduction. Public-Private Sector partnerships are intended to be symbiotic short term collaborations in which both sectors organize and share expertise, resources and services to their mutual benefits, sustainability and continuity of operations in both sectors. The need for collaborative planning and execution for disaster risk reduction is especially important in jurisdictions such as the TCI where critical emergency management infrastructures such as power generation, maritime transporta-

tion, communications and fuel are owned and managed by private sector entities.

In these cases, supporting business resilience and continuity is a priority. Public-private sector partnerships may not only facilitate post-disaster response and recovery - as is generally acknowledged - but it also have the potential to enhance pre-disaster prevention and preparedness through: developing risk-sharing arrangements; planning for community-wide response; awareness promotion and advocacy; social investment and philanthropy; and core business partnerships for mutual economic advantage and hence resilience-building.

With increasing intensities and frequencies of disasters in the region, disaster resilience has gain center stage as a core concept in building and sustaining social, economic and environmental capacities. As a society, we have come to recognise that our social, economic and environmental assets cannot be totally shielded from the impacts of hazards and as such we anticipate disruptions in the functions and operations of our social services.

It is in that context that there is urgency in building capacities to adapt to and manage risks in ways that minimizes impact and build resilience.

The private sector has traditionally demonstrated the ability to mitigate the impact of hazards and to bounce-back in a more timely manner than Government operations. This ability not only reflects higher level of resourcing in the private sector but often a more rational use of available resources. In the TCI, resilience in the private sector has implications for resilience and continuity of operations in the public sector as well. This is because private sector operations are the primary contributors to GDP and to livelihood sustainability in the TCI.



Imagine a scenario where the tourism industry in the TCI is so badly impacted by a hurricane that its capacity to rebound is severely compromised. What would be the implications of this for the public sector? In the absence of employment options in tourism, government would have no option but to initiate measures to address the social security needs of the unemployed in an environment of fiscal constraints and challenges. The Government of the TCI, catering to the social security needs of people who have lost their jobs would place even greater pressure on the public coffers.

### **Public Private Sector Partnership in the TCI**

Public-Private Sector Partnership for Disaster Risk Reduction (DRR) in the TCI has gained significant momentum in recent years. This momentum reflects government acknowledgement of the critical role of the private sector in advancing the DRM agenda and its commitment to facilitate and foster closer partnerships with the private sector. On the other hand, the private sector has become increasingly aware of the strategies and benefits for business continuity and the importance of government collaborations in these strategies. Let me hasten to say that the private sector is not synonymous with big business. While partnerships with larger firms such as LIME, Digicel, FORTIS, IGA among others have been the focus of collaborative efforts between the DDME and the private sector, there are opportunities for fostering and nurturing this partnership at community levels. In that context the private sector partners can be the small grocery or the fish plant in a community.

The aftermath of Hurricane Ike demonstrated the importance of public-private sector partnership in the recovery process. I want to take this opportunity at this point to express the gratitude of the DDME and the Government of the TCI to the Private Sector including Tropical Shipping for the critical role it played in the recovery phase of hurricane Ike. The private sector was instrumental in donating

and transporting relief supplies in response to the impact of IKE.

The partnership between government and the private sector in the TCI has become entrenched in the operational structure of the DDME. Operationally, the DDME has established 7 oversight committees each having responsibility for specific tasks in the emergency management process. The private sector is represented at the highest level on each of these committees. This representation ensures that the concerns of both the government and the private sector can be shared and address in a mutual supporting environment.

### **Contribution of the private sector to effective disaster management**

The Private Sector contributes to effective disaster risk management in the TCI in several ways:

**Use of Private Sector Expertise**-It is currently the norm in the TCI that when the capacity of Public authorities to respond is overwhelmed then formal and informal arrangements with the private sector are activated to support public agencies. Example: MoU with Heavy Equipment Operators for the use of their equipment or with churches to be used as shelters.

#### **Pre-Emergency Contributions**

Engagement of the private sector in emergency management in the TCI is also evident in the pre emergency phase of disaster management. For instance, insurance and re-insurance against disaster risk is entirely a private sector activity in the TCI. Without these insurance options the Government of the TCI would have to play the role of *de-facto* insurer. There is immense opportunity for expansion of this contribution given that only about 30% of potential disaster losses is insured.



### **Partnerships for co-sponsoring mitigation measures-**

The innovations and technologies that are required to support national mitigation measures often reside in the private sector. These innovations range from early warning systems to technological developments such as risk-modelling and the development of new materials for resilient construction. It is in that regard, that the need for public and private sector co-sponsorship of mitigation initiatives is underscored.

### **Challenges and Opportunities for Public-Private Sector Partnership in the TCI**

The underpinning premise regarding challenges and opportunities to public-private sector partnership is that the flip side of every challenge is an opportunity. The challenges and opportunities to this partnership in the TCI can be summarized as:

#### *Challenges:*

- **Bureaucratic red tapes to public-private sector partnership**

There are instances where private sector support to emergency response has been hindered by bureaucratic red tapes. For instance, measures or policies were not always in place to facilitate duty free entry of goods in support of the response efforts or visa exemption for volunteers coming to assist with the response and recovery efforts.

- **Non-inclusion of the private sector for critical decision making**

Confidentiality clauses within Government sometimes result in the

exclusion of the private sector for sensitive decision making. This can curtail informed participation by the private sector.

- **Ad-hoc response activities by the private sector**

Sometimes in its enthusiasm to assist private sector entities do not streamline their response activities with government structures and procedures. This can result in duplication of efforts and even confusion which reduces the effectiveness of the response.

#### *Opportunities:*

- Response to the bureaucratic red tapes has facilitated better rationalisation and streamlining of government activities in relations to emergency import.
- Failures and confusions which have occurred as a result of ad-hoc emergency response in the private sector have reinforced the need to engage the private sector at national emergency committee level where procedures and processes for response are outlined.

#### *Future initiatives*

- **A whole society approach is needed to enhance an economy's disaster resilience.**

This approach should be based on collaborative partnerships across all levels of government, the non-government sector, business including SMEs, civil society organizations and communities. As such, establishment of partnerships should be encouraged with the private sector in all phases of disaster management.



- **Strategic approaches and mechanisms for working with the private sector and setting-up frameworks for public-private partnerships should be developed and strengthened.**

The private sector should be engaged in collaborative initiatives to build disaster resilience at local and national level. The aim is to enhance both the capability of the public and the private sector to respond to and recover from disasters. Regular information sharing, emergency planning, and practical exercises are crucial in building resilience.

- **Partnerships should be based on shared responsibilities** and clearly assigned roles and tasks that engage the private sector not merely as a source of funding but use core competencies and expertise and engage the private sector as partners in long-term efforts to build community resilience.
- **Government should explore ways to create incentives to leverage public-private partnerships in disaster resilience** with the private sector who are engaged in partnership as part of their Corporate Social Responsibility programmes. Governments should work with the private sector to ensure the resilience and continuity of supply chains and essential services in the context of potential disasters.

#### **Areas of Collaboration**

- Establishment of an early warning system
- Sharing of data/information-Bathymetric data
- Donations of emergency equipment (SAT Phone, Radios) & Relief supplies
- Joint training & exercises
- Memorandum of Understanding (MoU) with hardware stores, supermarkets, heavy equipment operators, Churches, NGOs etc.

In order to prevent duplications of actions in the public and private sectors, public-private sector partnerships must be developed, enhanced and maintained for effective disaster management in the TCI.

*Presented by: Dr. Virginia Clerveaux  
Tropical Shipping 2016 Disaster Summit  
April 15,2016  
The Palms  
Turks & Caicos Islands*

## DEMA

“Our economy is dependent on the health of our natural environments”

**I**n the Turks and Caicos Islands, through tourism and fisheries, and, beyond the economy, our well-being is dependent on the health of the environments around us.

Therefore, sound environmental management is critical. The Department of Environment and Maritime Affairs (DEMA) is tasked with ensuring sustainable use of the environment, and so we regulate day to day activities, for example, enforcing laws pertaining to national parks and fisheries. However, the biggest threats to our environments come when natural disasters strike. Because natural environments have evolved in the face of these disasters they are somewhat resilient and will recover over time. However, the things we do on a daily basis may reduce this resilience and we might only notice this when a disaster strikes and the environment does not recover.

One example of this is shown by coral reefs: corals, and other organisms grow to form complex structures that are damaged in storms and hurricanes, but, over time, the reef recovers because the organisms grow back. This recovery may take years, but it is part of a slow natural process. Unfortunately, this recovery is being obstructed in many places by human activity. Our actions weaken the reefs in the first place, making the damage from storms and hurricanes more severe, and our actions also impede the recovery.



In the case of coral reefs, here are a few things that cause incremental declines in their resilience: increased nutrients in the water, sewage, pesticides, and sedimentation – these can kill or slow the growth of corals, cause disease, or increase the growth of algae at the expense of corals; destructive fishing (e.g. using bleach and other chemicals to catch lobster), anchor damage, reef strikes with boats or trampling by snorkelers, which all directly kill corals and erode the reef; fishing key species such as parrotfish which have a crucial role to play in the ecology of reefs because they remove algae and allow corals to grow better; the use of certain sunscreens (those containing oxybenzone) has been linked to the decline of coral reefs; the increase in sea surface temperatures (through climate change and El Niño) makes corals more vulnerable to bleaching – a response to intolerably high temperatures that slows the growth of corals and can cause widespread mortality; increased ocean acidity slows coral growth and increases erosion. So, if we can eliminate many of the impacts listed above, the message is clear: our reefs will be healthier and will be damaged less in storms, and will be much better able to recover afterwards.

The implications go beyond reefs. The coastline should be protected by reefs (and other natural features such as mangroves). If the reefs continue to decline, they will be less able to protect the coast. This will cause more destruction on land when a natural disaster occurs, and a lot of debris, run-off and pollution may end up in the sea and further damage the reefs and other systems.

So, if we want to keep our natural environments healthy, we need to manage them by looking at both the day-to-day impacts and the inevitable arrival of natural disasters.

## CDEMA

### The Role of CDEMA in Disaster Preparedness & Early Recovery



**T**he Caribbean Disaster Emergency Management Agency (CDEMA) is the region's premier institution for the delivery of comprehensive disaster management systems and operations. The Agency actively promotes a culture of safety and resiliency among its 18 Participating States (PSs) in the Caribbean Community

(CARICOM). CDEMA is mandated to promote disaster loss reduction in the region through preparedness planning and facilitating early response and recovery, where applicable, in an impacted Participating State.

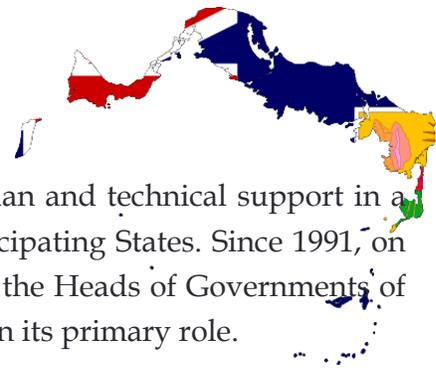
**Strengthening national and regional capacities in disaster preparedness is one of the priority areas identified** under the regional Comprehensive Disaster Management (CDM) Strategy. The strategic objective of the CDM Programme speaks to the integration of disaster management considerations into the development of planning and decision-making processes of CDEMA's PSs. Specifically, Regional Outcome 1.4 speaks to "Strengthened coordination for preparedness, response and recovery at the national and regional levels". Furthermore, in the Articles of Agreement Establishing CDEMA, the core functions of the CDEMA Coordinating Unit (CU) promotes early recovery through: (i) mobilising and coordinating disaster relief; (ii) mitigating or eliminating, as far as practicable, the immediate consequences of disasters in Participating States and; (iii) providing immediate and coordinated response by means of emergency disaster relief to any affected Participating State.

The role CDEMA is expected to play in disaster preparedness and response cannot be overstated. To this end, the CDEMA Coordinating Unit supports all 18 Participating States in disaster preparedness activities. Such activities include; training, simulations, plans review and development, and programme development. CDEMA's interventions also include the development of core standards for preparedness capability for National Disaster Offices and the provision of training of personnel to support early recovery activities. The CDEMA CU also supports the development of proposals to access funding for relief and rehabilitation through the Caribbean Development Bank (CDB) Emergency Relief Grant.

#### The Regional Response Mechanism (RRM)

The CDEMA System is activated to support any impacted Participating State including the Turks and Caicos Islands (TCI) via the Regional Response Mechanism (RRM).

*Continues on pg. 30*



The RRM is coordinated by CDEMA to provide humanitarian and technical support in a timely manner if requested by any of the Agency's 18 Participating States. Since 1991, on the establishment of the CDEMA (formerly the CDERA) by the Heads of Governments of CARICOM, response coordination of disaster events has been its primary role.

From 1992 -2015 the Regional Response Mechanism has been in action seventeen (17) times and in several instances to multiple islands at the same time. The response has been to disasters resulting from volcanic eruptions, earthquakes, and weather related events.

The level of activation or support provided through the RRM is determined by the country's ability to cope with a disaster event. Of the three levels within the RRM, direct support is provided in response to a Level Two or Level Three event and monitoring and reporting for a Level 1. A Level Two disaster event is a situation where the country may or may not have declared a disaster but may not have the resources to fully manage the event. The affected country will indicate to CDEMA the type of external assistance required and the CDEMA Coordinating Unit will mobilise and deploy the relevant personnel and equipment.

*The RRM is extremely dependent on the readiness and willingness of the governments of the CDEMA Participating States, regional institutions, key development partners, agencies of the United Nations and humanitarian partners to work together in offering immediate assistance when the call comes from the CDEMA Coordinating Unit. The support may include the provision and distribution of relief supplies, ensuring that the logistics are in place for security and movement of supplies from national or regional warehouses to the victims that need it most, search and rescue, health and medical assistance, emergency operations management, emergency communications, damage and needs assessments.*

It is the responsibility of the CDEMA Coordinating Unit to ensure that regional response teams are trained and ready for deployment at short notice. The pool of the technical teams are drawn from Universities, National Disaster Offices, Emergency response services such as Fire and Medical, Disciplined Services, Regional specialized institutions such as the Caribbean Institute for Meteorology and Hydrology Institute, the Seismic Research Centre in Trinidad and Tobago and the Regional Security System. The response teams trained and deployed by CDEMA include; **CARICOM Disaster Assessment and Coordination (CDAC), CARICOM Operational Support (COST), CARICOM Disaster Relief Unit (CDRU), Rapid Needs Assessment Team (RNAT) and Search and Rescue (SAR).**

## Partners in Disaster Preparedness

The UK Foreign and Commonwealth Office is pleased to support the Turks and Caicos Islands in their ongoing efforts to strengthen disaster preparedness and build a nation that is more resilient to disasters. While we all must remain vigilant to the constant threat of hurricanes during the hurricane season, disaster management's role encompasses a far greater range of potential hazards which could threaten this vulnerable island nation. Before, during and after disasters, personnel across all government organizations must ensure that disaster management remains a priority of business.

The FCO continues to partner with the Department of Disaster Management and Emergencies to build capacity in the following areas:

**Enhancing disaster command and coordination:** The FCO supports a series of courses to enhance command and control of the responding personnel and aiding organizations. The Turks and Caicos Disaster Management Team is implementing an enhanced Incident Management System. This system integrates a standardized Caribbean approach to manage dis-

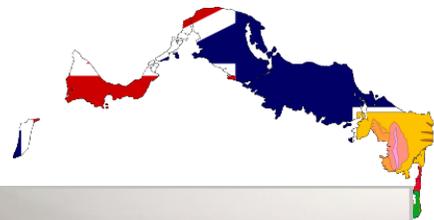


aster personnel, resources, and information in the field and within the Emergency Operations Center. As all Caribbean nations begin to implement this unified system, we will create a more efficient, unified structure and standardized approach to disaster management.

**Mass rescue at land and sea:** The FCO, in partnership with the United States Coast Guard, the International Maritime Organization, the cruise ship and airline industries, have joined forces to enhance the islands ability to save lives in the aftermath of a significant transportation incident. Together, we are enhancing response protocols to save lives on land and sea, provide victim care, and safely return survivors home.



*Continues on pg. 32*



- **The royal navy stands ready to respond:** The royal navy remains committed to their humanitarian mission in service to the overseas territories within the Caribbean and Bermuda. With well trained personnel, equipment, and supplies, the ship's personnel conduct joint training and exercises ensuring a coordinated response as was illustrated in the ship's 2015 responses to Hurricanes Erica and Joaquin.
- **Emergency Management Accreditation Program:** The FCO supports Disaster Management's efforts to obtain compliance with international standards within their comprehensive emergency management program. A recently completed baseline assessment illustrates significant achievements and highlights opportunities for future improvements allowing focused capacity building strategies.
- **Strengthening partnerships and building upon lessons learned:** The FCO continuously sponsors participation in training courses, conferences, and workshops to build disaster response and recovery capabilities. Together we are building a stronger more resilient disaster management team by learning from our past and building stronger partnerships with our neighbors and the private sector. Through joint planning, training, and exercises we expand our ability to save lives and lessen the impact of disasters.

# Kids Corner



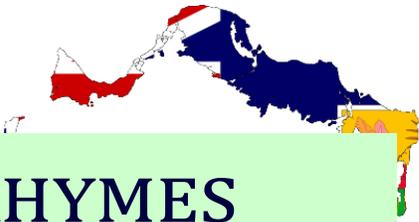
*"You can never stop a natural disaster, so it's best to be prepared!"*  
*-unknown-*

*"Remember; when disaster strikes, the time to prepare has passed."*  
Steven Cyrus



*"Building Resilience throughout the Turks and Caicos Islands"*





# 2016 HURRICANE RHYMES

By Ms. LEATHE WILSON



The time has come  
You better prepare  
The hurricane season  
Is almost here  
Don't get caught up in the rush  
You can only do so much.

So hurry up and go to the store  
Get food stuff, batteries, flash lights and more.

Start in time  
Do not wait  
The season is  
coming  
Don't be late!

The hurricane season is here  
So take time out to pre-  
pare  
Prepare in advance  
Don't miss your chance  
The hurricane season is  
here.



# KIDS WEATHER JOKES



How do hurricane see?



With one eye!



What did the lightning bolt say to the other lightning bolt?



Your shocking!



What did the hurricane say to the other hurricane?



I have my eye on you!



What did the hurricane say to the palm tree?



Hang onto your leaves, this will be no ordinary breeze!



What goes up when the rains come down?

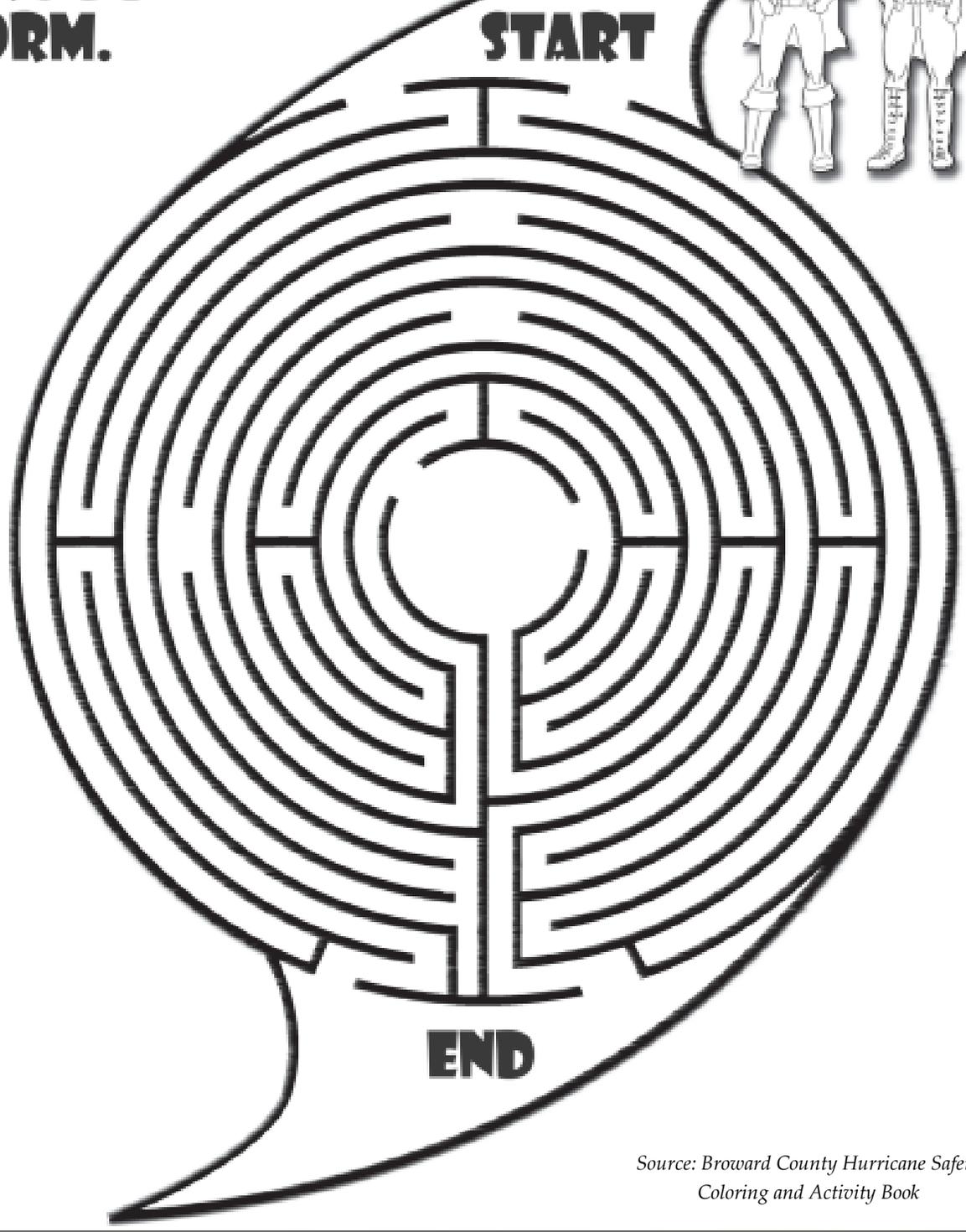
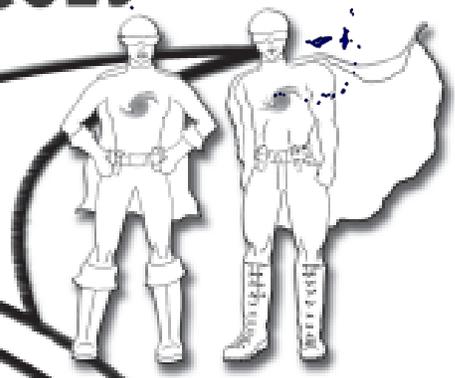


An umbrella!





**HELP THE SAFETY SUPERHEROES  
FIND A SAFE WAY  
THROUGH THE  
STORM.**



*Source: Broward County Hurricane Safety  
Coloring and Activity Book*



## Poems by Oseta Jolly Primary School

Class: Grade 5 Dean

Teacher: Mrs. Diana Dean

### HURRICANE

OH, HOW THE HOWLING,  
THE UNSTOPPABLE, RELENTLESS,  
MONSTROUS SURGES  
BRING FEAR AND WORRY TO THE BRAVEST HEART.  
IT'S A BIG MESS OUTSIDE  
AS EVERYTHING BECOMES LOST  
IN A WHIRLWIND OF AN ENDLESS THUNDERSTORM

ALL THE WARNINGS TOLD US TO BE PREPARED  
AS THERE WAS A RAGING STORM DRAWING NEAR;  
BUT, TO MANY, THE ENDLESS SUMMER SKIES,  
AND COOL BREEZE TOLD A DIFFERENT STORY,  
SO, WE WENT ON WITH OUR BUSY LIVES,  
WITHOUT CONCERN OR WORRY.

SOON, PREPARATION TIME PASSED US BY,  
AND THERE WAS NO MORE SUN IN THE SKY.

THE CLOUDS, NOW THICK AND BLACK,  
ROLLED FORWARD AS THE SUN ROLLED BACK.  
FROM THE DISTANT SKY CAME THUNDER AND  
LIGHTENING,  
WITH A BOOM AND A CRACK  
THAT WAS RATHER FRIGHTENING.

WHEN IT'S ALL DONE,  
WE'RE SPEECHLESS AND SHAKEN,  
AS WE LOOK AT ALL THE HURRICANE HAS TAKEN.  
NOW, HOW WE WISHED THE WARNING SIGNS  
WE HAD NOT IGNORED,  
BUT THAT WE HAD SPENT MORE TIME BECOMING  
SECURED.  
OUR LIVES, NOW REARRANGED IN THE BLINK OF  
AN EYE,  
AS STORM CLOUDS ROLLED AWAY  
RETURNING, TO US, OUR BEAUTIFUL AZURE SKY.

### HURRICANE

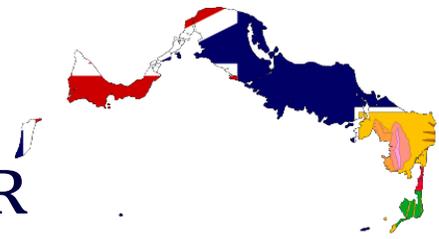
FROM HAZEL IN 54  
TO JOAQUIN IN 2015  
HURRICANES HAVE PROVEN TO BE A FORCE TO  
RECKON WITH.

AS ITS WINDS SPIRAL AROUND AND AROUND  
IT BLOWS THE TREES, ROOFTOPS AND POWER  
LINES TO THE GROUND.  
IT PUSHES WATER INTO A MOUND,  
PRODUCING THUNDERSTORMS  
THAT MAKES YOU SHUDDER WITH EVERY SOUND.  
IN 1970, IN BANGLADESH,

ONE MILLION PEOPLE MET THEIR DEATHS;  
THEN CAME ANDREW IN 92,  
WITH BILLIONS IN DAMAGES,  
ALTHOUGH LOSS OF LIFE WAS FEW.

IN THE ABSENCE OF PREVENTION,  
WE MUST TAKE EVERY PRECAUTION;  
HEED THE WARNINGS;  
SECURE OUR HOMES;  
HAVE AN EMERGENCY PLAN;  
AND EVACUATE IF YOU CAN.

# KIDS CORNER



## Hurricane Preparedness

Find and circle all of the words that are hidden in the grid below. The words may be hidden in any direction



- BATTERIES
- CANNED FOOD
- DRINKING WATER
- EL NINO
- EVACUATION PLAN
- FAMILY INFORMATION

- FLASHLIGHT
- LA NINA
- MEDICATION
- MONEY
- RADIO
- RING LINE

- STORM SURGE
- TOILETRIES
- TROPICAL DEPRESSION
- WARNING
- WATCH
- ZIP ZONES

“ Preparedness, when properly pursued, is a way of life, not a sudden, spectacular program.”  
Spencer W. Kimball, 1976

## Average Hurricane Season

Includes Sub-Tropical Storm Alex in January



Named Storms **13**

Hurricanes **6**

Major Storms **2**

# Hurricane Season Tips

**Important Information You Need To Know...**

*"Building Resilience throughout the Turks and Caicos Islands"*



# FAMILY DISASTER PLAN

Everyone Should Have a Family Disaster Plan

“Preventing the loss of life and minimizing the damage to property from hazards are responsibilities that are shared by all.” One of the ways you can prepare for and mitigate against disasters is by planning with your family. How many of us have family disaster plans? Your family Disaster Plan should be based on your vulnerability to any possible hazards. *You should keep a written Plan and share your Plan with other friends or family.*

<b>First Name:</b>	
<b>Last Name:</b>	
<b>Address:</b>	
<input type="checkbox"/>	Where will we go if we have to evacuate? (Name, Address, Telephone #):
<input type="checkbox"/>	Have I made appropriate arrangement?:
<input type="checkbox"/>	Have I notified my family/friends of our plans?:
<input type="checkbox"/>	If the answer to the above is yes, list the names, addresses, and telephone numbers of those people who were notified:
<input type="checkbox"/>	Does my employer provide a special shelter for me and my family?:
<input type="checkbox"/>	If the answer to the above question is yes, list the name, address, and telephone number of the shelter:
<input type="checkbox"/>	Name and types of pets:
<input type="checkbox"/>	What will I do with my pets if I stay home?:
<input type="checkbox"/>	What will I do with my pets if I shelter elsewhere?:
<input type="checkbox"/>	Do I have a boat?:
<input type="checkbox"/>	How will I secure that boat?:
<input type="checkbox"/>	If I stay home, what preventative measures will I take to safeguard my home and my life?:
	Windows/glass door protection purchased?:
<input type="checkbox"/>	<input type="checkbox"/> Shutters <input type="checkbox"/> Plywood(1/2 inch or thicker) <input type="checkbox"/> None purchased as yet <input type="checkbox"/> I already have shutters and/or material
<input type="checkbox"/>	Have important papers been copied and secured as well as valuables? If so, where are they located?:
<input type="checkbox"/>	If the answer is yes, list the location:
<input type="checkbox"/>	Has a safe room been identified?:
<input type="checkbox"/>	Do I have a Survival Kit?:
<input type="checkbox"/>	Write down all important names, addresses, phone numbers, account numbers, policy numbers etc. of doctors, insurance agents (health, car, home), lawyers, family and friends:

# EMERGENCY PREPAREDNESS KIT

## FOOD AND WATER

- Baby Formula/baby food
- Bottle Water (1 gallon per person per day)
- Canned meat (tuna, chicken, corned beef, ham, sardines, sausages)
- Canned soups
- Dried fruits
- Dry cereal
- Energy Drinks
- Biscuits
- Granola Bars



## PERSONAL CARE

- Antibacterial Bath Soap
- Toilet paper (keep in plastic bags)
- Toothbrush & toothpaste
- Contact lens cleaner and case
- Essential prescription medication
- Extra clothing
- Eye drops
- Mouthwash
- Nail Clipper & File
- Razors

## FIRST AID KIT

- First Aid Handbook
- 3" elastic Bandages
- Antibiotic Ointment
- Anti-diarrhea Medication
- Anti-histamine Lotion
- Aspirin
- Band-Aids/plasters
- Cold & Cough Medicine adults & children formulas)
- Ibuprofen
- Insect bite lotion
- Insect-repellent
- Iodine
- Razors
- Rubbing alcohol
- Scissors
- Sharp knife



## DISASTER SUPPLY KIT

- Antibacterial hand soap
- Bottle and Can Opener
- Garbage Bags
- Lighters, Matches, Flashlight with batteries
- Plastic Cups, Plates and Utensils
- Plastic Zipper Bags - small, medium & large
- Pot
- Unscented Bleach
- Radio (battery operated/hand





## HURRICANE CHECKLIST FOR BUSINESS

Here are a few things you can do to keep your business, documents and equipment safe if a [hurricane](#) is expected.

- Protect your property
  - Invest in and install shutters or plywood in order to protect windows and doors from wind borne-debris.
  - Have the roof of your building evaluated to ensure it can withstand a storm.
  - Remove any branches or trees adjacent to your building that could potentially fall and damage it.
  - Sandbag any area that is subject to flooding.
  - Move heavy or breakable objects to low shelves.
- Protect important documents and information
  - Back up important electronic files and store them safely along with any important documents. If your office will not be safe during the hurricane find a secure off-site location.
  - If no offsite location is available, keep documents in a sturdy, waterproof packaging.
  - Station computers above the flood level.
  - Move equipment and vital documents away from large windows.
- Keep an Emergency Preparedness Kit
- Keep A Preparedness Checklist
- Written Disaster Plan



## KIT CHECKLIST FOR PETS

- Your written family / pet disaster plan
- Crate / carrier and bedding
- Food, water, manual can opener and dishes
- Plastic bags, paper towels, newspaper
- Cleaning supplies, disinfectants
- Collar, leash, harness
- Muzzle, gauze rolls
- Identification tags
- Current medical and vaccination records
- Extra medications or copies of current prescriptions
- Current photos of you and your pet (s) together
- Pet comfort items: towels, blankets, toys
- A list of hotels, motels, shelters and boarding kennels that accept pets
- Detailed instructions for animal care and rescue workers
- First aid kit for your pet (s)
- Flashlights, batteries
- Label all pet supplies with your name, address and telephone number





## DO YOU KNOW YOUR EMERGENCY SHELTERS!!!

CONTACT THE DEPARTMENT OF DISASTER MANAGEMENT AND  
EMERGENCIES AT (649) 946 2177 OR (649) 946 4521/2177  
FOR THE CLOSEST SHELTER NEAR YOU!

### EMERGENCY SHELTER RULES!!

#### **PLEASE BRING:**

- A patient and Cooperative Attitude!!
- 2 blankets and 1 pillow for each persons, along with long chairs or cots
- Prescription medication
- 3 gallons of water for each person
- Special dietary needs as well as favorite non-perishable snacks
- Flashlights and Batteries
- Important documents
- Personal hygiene items – soap, towel, toothbrush etc.
- Small toys and games – try for quiet things!
- Books
- Baby supplies

#### **DO NOT BRING**

- A Negative or Demanding attitude
- Coolers
- Candles
- Alcoholic drinks
- Pets
- Illegal drugs
- Weapons
- Smoking is **NOT** permitted in the shelters
- Large suitcase

**KNOW THE RULES!**



# TERMS AND DEFINITIONS

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## Used During Hurricane Season

1. **Tropical Depression.** An organized system of clouds and thunderstorms with a defined surface circulation and maximum sustained winds\* of 38 mph or less
2. **Tropical Storm.** An organized system of strong thunderstorms with a defined surface circulation and maximum sustained winds of 39-73 mph (34-63 kt)
3. **Hurricane.** An intense tropical weather system of strong thunderstorms with a well-defined surface circulation and maximum sustained winds of 74 mph (64 kt) or higher
4. **Storm Surge.** A dome of water pushed onshore by hurricane and tropical storm winds. Storm surges can reach 25 feet high and be 50-1000 miles wide.
5. **Storm Tide.** A combination of storm surge and the normal tide (i.e., a 15-foot storm surge combined with a 2-foot normal high tide over the mean sea level created a 17-foot storm tide).

## Tropical Storm Watches and Warnings:

1. **Alert.** An alert is issued at **60 hours**.
2. **Tropical Storm Watch.** Tropical conditions are possible along the coast within **48 hours**.
3. **Tropical Storm Warning.** Tropical Storm conditions are expected within **36 hours**.

## Hurricane Watches and Warnings:

1. **A Hurricane Watch.** Hurricane Conditions are possible in your area within **48 hours**. During a **Hurricane Watch**, prepare to take **immediate action** to protect your family and property in case a **Hurricane Warning** is issued.
2. **Hurricane Warning:** A Hurricane is expected in your area in **36 hours or less**. Complete all storm preparations and evacuate if directed by local official.



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Turks & Caicos Islands  
Red Cross



*“Building Resilience throughout the Turks and Caicos Islands through partnerships”*



# Emergency Contact Numbers

## PROVIDENCIALES

**Director**  
Dr. Virginia Clerveaux  
Disaster Management and  
Emergencies  
(649) 946-4521  
(649) 946-4177  
[viclerveaux@gov.tc](mailto:viclerveaux@gov.tc)  
[viclerveaux.ddme@gmail.com](mailto:viclerveaux.ddme@gmail.com)

**GRAND TURK**  
Deputy Director  
Ms. Rikardia Pardo  
Disaster Management and  
Emergencies  
(649) 946-2177  
[rspardo@gov.tc](mailto:rspardo@gov.tc)  
[rpardo.ddme@gmail.com](mailto:rpardo.ddme@gmail.com)

**SALT CAY**  
District Commissioner  
Ms. Almaida Wilson  
(649) 946-6985  
[avwilson@gov.tc](mailto:avwilson@gov.tc)

## SOUTH CAICOS

**District Commissioner**  
Mr. Yvette Cox  
(649) 946-3211  
(649) 232-8133  
[ydcoc@gov.tc](mailto:ydcoc@gov.tc)  
[ydlcox@yahoo.com](mailto:ydlcox@yahoo.com)

## NORTH CAICOS

**District Commissioner**  
Cynclair Musgrove  
(649) 343-3755  
(649) 946-7108  
[cpmusgrove@gov.tc](mailto:cpmusgrove@gov.tc)

## MIDDLE CAICOS

**District Commissioner**  
Mr. Fredrico Johnson  
(649) 338-6402  
(649) 345-6300  
[fredrico\\_33@yahoo.com](mailto:fredrico_33@yahoo.com)

## RED CROSS

**Director**  
Ms. Lormeka Williams  
(649) 941-8056  
(649) 331-8056  
[directortciredcross@gmail.com](mailto:directortciredcross@gmail.com)

## ADRA

**Director**  
Ms. Almartha Thomas  
(649) 241-8266  
[cactusbud51@gmail.com](mailto:cactusbud51@gmail.com)

## POLICE, FIRE & AMBULANCE SERVICES

911

## HOSPITAL

Grand Turk (649) 941-2900  
Providenciales (649) 941-2800

## DDME'S CONTACT DETAILS

Director  
Dr. Virginia Clerveaux  
Tel: 649-338-4031/3675

Deputy Director  
Ms. Rikardia Pardo  
Tel: 649-338-4032/4036

Community Preparedness Manager  
Mr. Desmond Lightbourne  
Tel: 649-338-4035

Public Information and Education Officer  
Ms. Andrea Been  
Tel: 649-338-3672

Radio Technician  
Mr. Dwaine Simmons  
Tel: 649-338-3674

Administrative Officer  
Ms. Davetria Morris  
Tel: 649-338-4033

**PROVIDENCIALES, 1316 CUSTOMS COMPLEX,  
OFF LEEWARD HIGHWAY, TURKS & CAICOS  
ISLANDS**

**PHONE: 649-946-4521/4177**

**SATELLITE PHONE:**

**870-7722-2258**

**FAX: 649-941-4532**

**GRAND TURK, SOUTH BASE,  
TURKS & CAICOS ISLANDS**

**PHONE: 649-946-2177**

**SATELLITE PHONE:**

**870-7722-2258**

**FAX: 649-946-1230**



[WWW.GOV.TC/DDME](http://WWW.GOV.TC/DDME)

[WWW.FACEBOOK.COM/TCI.DDME](http://WWW.FACEBOOK.COM/TCI.DDME)

[DDME.TCI@DDMETCI](mailto:DDME.TCI@DDMETCI)

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