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# STRENGTHENING EARLY WARNING SYSTEMS IN THE CARIBBEAN

## ANTIGUA & BARBUDA

### EARLY WARNING DRILLS



PRIOR KNOWLEDGE  
AND IDENTIFICATION  
OF RISK



MONITORING AND  
WARNING SYSTEMS



DISSEMINATION AND  
COMMUNICATION



RESPONSE  
CAPACITY





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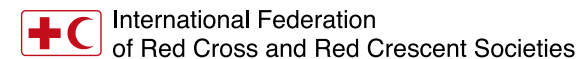
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## ACRONYMS

**CAP** » Common Alerting Protocol

**CDEMA** » Caribbean Disaster Emergency Management Agency

**CDM** » Comprehensive Disaster Management

**DDC** » District Disaster Coordinators

**DIPECHO** » Disaster Preparedness Program of the European Civil Protection and Humanitarian Aid Operations

**DRR** » Disaster Risk Reduction

**ECHO** » European Civil Protection and Humanitarian Aid Operations

**EU** » European Union

**EWS** » Early Warning System

**GIS** » Government Information Service

**HIP** » Humanitarian Implementation Plan

**IFRC** » International Federation of Red Cross and Red Crescent Societies

**ITU** » International Telecommunication Union

**MHEWS** » Multi-Hazard Early Warning Systems

**NODS** » National Office of Disaster Service

**SVG** » Saint Vincent and the Grenadines

**UNDP** » United National Development Program

**WMO** » World Meteorological Organization



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# 1. INTRODUCTION

The Caribbean region is highly prone to natural hazards such as hurricanes, floods, volcanic and seismic activities, droughts and forest fires. The increasing impact of global climate change and the risk posed by a range of natural, environmental and technological hazards are among the Caribbean's most critical development problems. The past decades have been marked by an intensification of the impact of disasters, such as destruction of livelihoods and communities, as well as a setback in development gains.

Due to the high levels of vulnerability, there is a broad recognition of the need to strengthen capacity for preparedness, response, and recovery, and integrate risk reduction measures into development paths to create safe, resilient and sustainable communities and States in the Caribbean. As one component to reducing risk, the Caribbean Comprehensive Disaster Management (CDM) Strategy 2014 – 2024 prioritizes integrated, improved and expanded community early warning systems.<sup>1</sup> This focus is reinforced by the Sendai Framework for Action which calls for enhanced disaster preparedness.<sup>2</sup> Likewise, UNDP's Strategic Plan 2018 – 2021 aims to strengthen resilience to crisis and shocks and support countries with assessments, planning tools and mechanism so that gender-sensitive and risk-informed prevention and preparedness solutions are available to limit the impact of natural hazards.<sup>3</sup> Reducing risk and building resilience is a theme that cuts across the Sustainable Development Goals.

As identified in the ECHO Humanitarian Implementation Plan (HIP) 2017, preparation and response capacities in the Caribbean have improved. However, the need for further action to address preparedness capacities, reinforce Early Warning Systems (EWS) and foster exchanges between countries and linkages with regional institutions is crucial. The HIP specifically highlighted that “collaboration between countries on Early Warning Systems to exchange on good practices should be fostered” and stressed that the “compilation of DRR tools and processes endorsed

1. Priority Area 4, Outcome 3, Regional CDM Strategy 2014 – 2024 <https://www.cdema.org/cdm>

2. Priority Area 4, Sendai Framework for Disaster Risk Reduction 2015 – 2030. <https://www.unisdr.org/we/coordinate/sendai-framework>

3. Outcome 3, Signature Solution 6, UNDP Strategic Plan 2018 – 2021 <https://strategicplan.undp.org/>



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at national and regional level, led by national systems in coordination with the CDEMA, EU Delegations and other development actors” are priority areas for action.

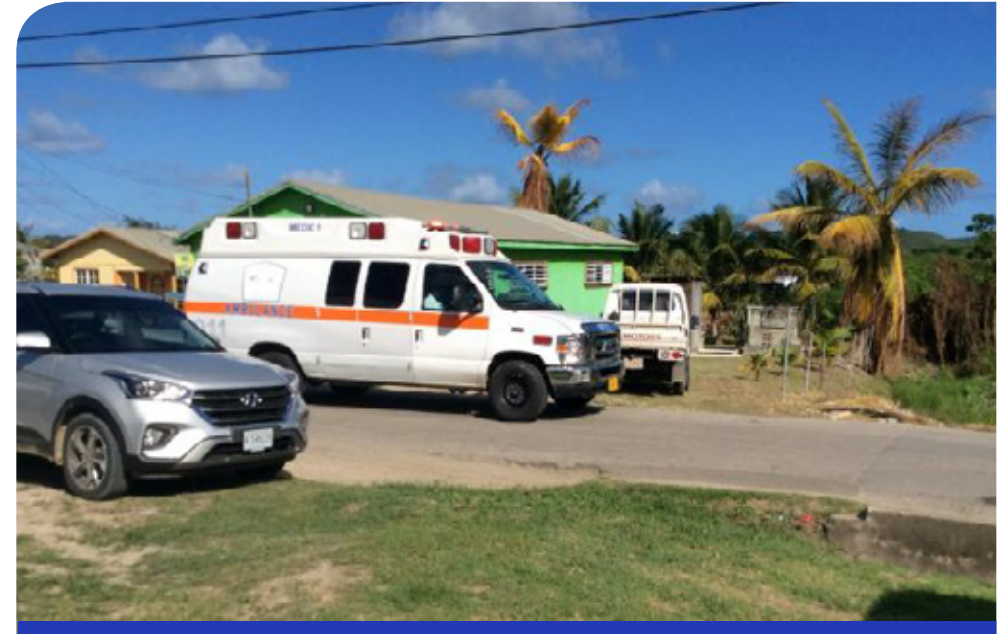
Thus, Antigua and Barbuda, Dominica, Dominican Republic, Saint Lucia and Saint Vincent and the Grenadines (SVG) set out to improve their Early Warning Systems (EWS) through an 18-month project financed by European Civil Protection and Humanitarian Aid Operations (ECHO). The “*Strengthen Integrated Early Warning Systems for more effective disaster risk reduction in the Caribbean through knowledge and tool transfer*” project sought to strengthen EWS components and close priority gaps at a national level, contributing to the integration of national and community EWS, and addressing sustainability and national ownership of EWS.

The country level actions were supported by UNDP, International Federation of the Red Cross and Red Crescent Societies (IFRC), and the Caribbean Disaster Emergency Management Agency (CDEMA), who embraced a partnership approach and helped reinforce the efforts to realize a more integrated EWS and enhance disaster risk reduction at the regional, national and community level.

The project also aimed to increase access to tools and knowledge of EWS at a regional, national and regional level, through development of, improvement to, and translation of models, methodologies and toolkits to distinct contexts. Emphasis was put on knowledge transfer and exchange, allowing actors to leverage the expertise that exists in the Caribbean to reduce disaster risk and foster stronger linkages between countries exposed to the similar risks.

This case study details a national effort by Antigua and Barbuda to review and strengthen their Early Warning Systems. Based on the national assessment of the Multi-Hazard Early Warning Systems (MHEWS) carried out under the current DIPECHO project, the main components of the EWS priority action in Antigua and Barbuda included the adoption of the internationally standardized Common Alerting Protocol (CAP), an increase in EWS community awareness efforts in targeted communities, enhanced drill scripting, and the execution of an emergency drill in one vulnerable community. This document provides a systematization of the results, lessons, processes and tools used in the implementation of the priority action.

This document is intended to be read together with, and complemented by, the [Strengthening Early Warning Systems in the Caribbean](#) document and [Strengthening Early Warning Systems in the Caribbean: South-South Cooperation](#) documents.





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## 2. CONTEXT

Antigua and Barbuda is exposed to a wide range of natural and anthropogenic hazards. The country is vulnerable to and has experienced several hydro-meteorological hazard impacts, predominantly droughts and hurricanes. It has also experienced seismological events such as earthquakes, and landslides as well as other physical hazards. It is among the top 5 countries most exposed to multiple hazards.<sup>4</sup> 100% of the land area and 100% of the population is exposed to two or more hydro-meteorological events.<sup>5</sup> More than 80% of GDP is at risk from two or more hazards. The main hazards identified for the island are winds/hurricanes, drought, storm surge, floods, coastal and stream erosion, and earthquakes. In relation to tsunamis, they are considered a real but infrequent hazard with potential to cause devastating impact in the island, as over 80% of critical infrastructure lies within two kilometres of the coast and is within the demarcated impact area for a 10-meter wave. Tsunamis are therefore considered a national disaster management concern for the National Office of Disaster Service (NODS), and the national early warning system at large.

4. Global Facility for Disaster Reduction and Recovery. 2010. *Disaster Risk Management in Latin America and the Caribbean Region: GFDRR Country Notes – Antigua and Barbuda*, World Bank, p. 86

5. National Office of Disaster Services. 2017. *Country Document for Disaster Risk Reduction: Antigua and Barbuda 2016*, ECHO, p. 20



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## 3. THE PROBLEM

Antigua and Barbuda's national early warning system (EWS) consists of a group of independent national authorities responsible for various hazards: health, hydro-meteorological, tsunami, agriculture, and environment. Each provides its own warnings in its own format, generally via the established media and the Government Information Service (GIS). These authorities need to be integrated into a protocol that the public can easily recognize and understand.

### What is CAP?

The Common Alerting Protocol (CAP) is an international standard format for emergency alerting and public warning. It is designed for "all-hazards" related to weather events, earthquakes, tsunami, volcanoes, public health, power outages, and many other emergencies. CAP is also designed for "all-media", including communications media ranging from sirens to cell phones, faxes, radio, television, and various digital communication networks based on the Internet. The CAP is a simple and general format (XML-based data format) for emergency alerting and public warning. Within the UN system, the International Telecommunication Union (ITU) adopted the Common Alerting Protocol in 2007. The standard CAP format has been promoted by both World Meteorological Organization (WMO) and ITU to other UN bodies concerned working in disaster and emergency management and to the public worldwide. International emergency management agencies and many countries around the world have also adopted it as a cornerstone of their early warning systems.

The warnings generally apply to the national audience with limited capacity for responding to precise community risks. The system has worked well for national events such as hurricanes, as well as epidemic risk, such as AH1N1, Zika and animal disease and pest risks. However, with increasing access by the public to hazard specific websites and the use of social media, the existing national systems



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authority is being challenged. In the past, private individuals have circulated incorrect forecast and warnings to the public, causing confusion and an erosion of public trust in alerts. This led the country to embark on a national effort to review and strengthen their EWS. In addition to a variety of analyses of its disaster risk reduction and disaster management capacities in the past eight years, and the national assessment of MHEWS carried out under the current DIPECHO project, the adoption of the internationally standardized [Common Alerting Protocol](#) (CAP) has been one of the priorities for Antigua and Barbuda.

An ECHO-funded UNDP CAP project in 2013 supported the acquisition of a server. The CAP software and peripherals were then acquired in 2018 by IFRC through its Hurricane Irma Appeal; selected NODS personnel were trained in the CAP. Thus, a review of the current EWS systems in line with the CAP became a priority. Some of the specific gaps and actions to achieve this are as follows:

- a) Integrate the many independent EWSs into a standardized system and process that disseminates the warnings in similar formats, so that the public can easily identify authoritative messages
- b) Strengthen the capacities of alerting authorities through sustained governmental support
- c) Ensure comprehensive historical information on hazards, mapping at high resolution, and sharing of information on a multi-risk platform and linking to the national CAP system
- d) Widely expand the networks for hazard monitoring, particularly in high-risk communities
- e) Revise and test alert and warning messages, allowing the intended audience to help shape MHEWS communications tools
- f) Raise awareness of the national MHEWS and the required response to warnings, and test response plans







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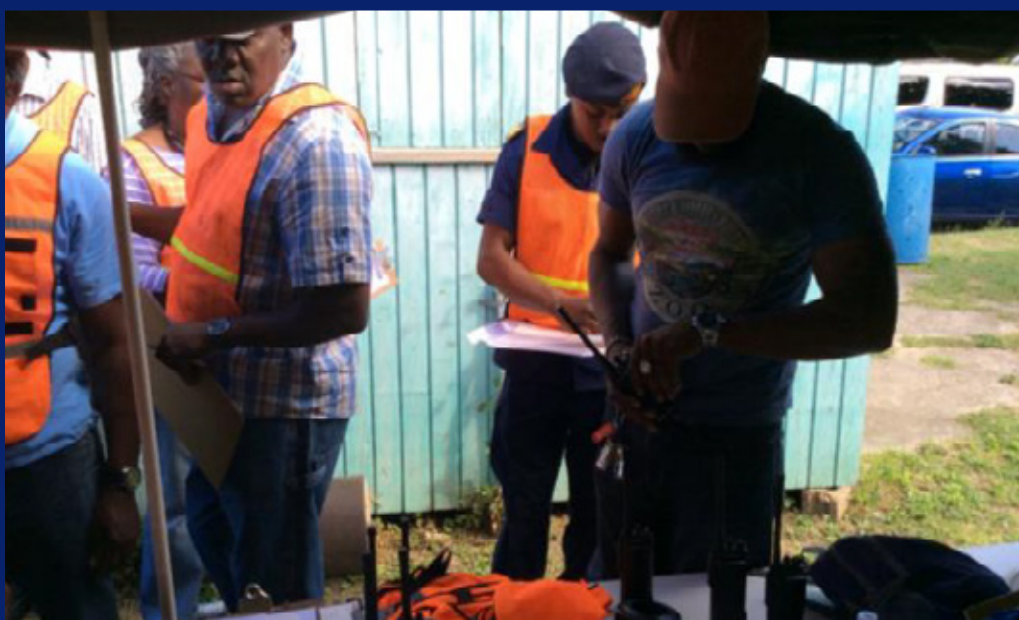
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## 4. THE PRIORITY ACTION

In the case of Antigua and Barbuda, the Priority Action was used to further consolidate the previous work that had been carried out on CAP. The proposal was reviewed and approved with a budget of \$ USD 21,006. The end goal sought by the island was for the CAP to integrate all EWS sectors into a common format and alerting process to allow for the dissemination of early warnings from various EWS-related entities simultaneously across multiple mediums, including social media. The Priority Action was aimed at:

- EWS community awareness and knowledge survey in four targeted communities (Bethesda, Grays Farm, Point, and Urlings.)
- Training drills and alert scripting capability and standards in five critical agencies
- Community drill in response to tsunami, storm surge or fire hazard in one vulnerable community

These actions sought to contribute to both Sendai Framework commitments (*Target 7: Substantially increase the availability of and access to multi-hazard early warning systems by 2030*) and the CDEMA's Comprehensive Disaster Management Strategy 2014-2024 (CDM 4.3. *Community Early Warning Systems, integrated, improved and expanded*).

The three interventions were informed by the national disaster legislation, the national disaster plan, and the standard operation protocols the country already has defined. They were dependent on the final installation and operation of the CAP software. In Antigua and Barbuda's case, the IFRC together with the National Red Cross Society were the implementing partner and supported the country.



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## 4.1 Community Awareness & Knowledge Survey

The EWS Community Awareness & Knowledge Survey was designed to measure the level of knowledge of four selected communities on risk, dissemination of warnings, and preparedness to act. In other words, the purpose of the survey was to establish a baseline on community awareness and perceptions of early warning systems within their respective communities.

The survey was carried out using the existing disaster volunteer system, which incorporates 17 constituency-based District Disaster Coordinators (DDC) who volunteer for disaster management training and disaster coordination during disaster impact. Each DDC is supported by a deputy and an additional sub-committee of their various communities. Four vulnerable communities were selected for the survey: Bethesda (southeast of Antigua), Gray's Farm (northwest of Antigua), Point, and Urlings (southwest of Antigua).

Once the communities were selected, consultations were held with the relevant DDCs, who were then charged with collecting survey responses over a six-week period, based on a sample of more than 100 community members. DDCs were provided with hard copy questionnaires as well as an online link via SurveyMonkey.

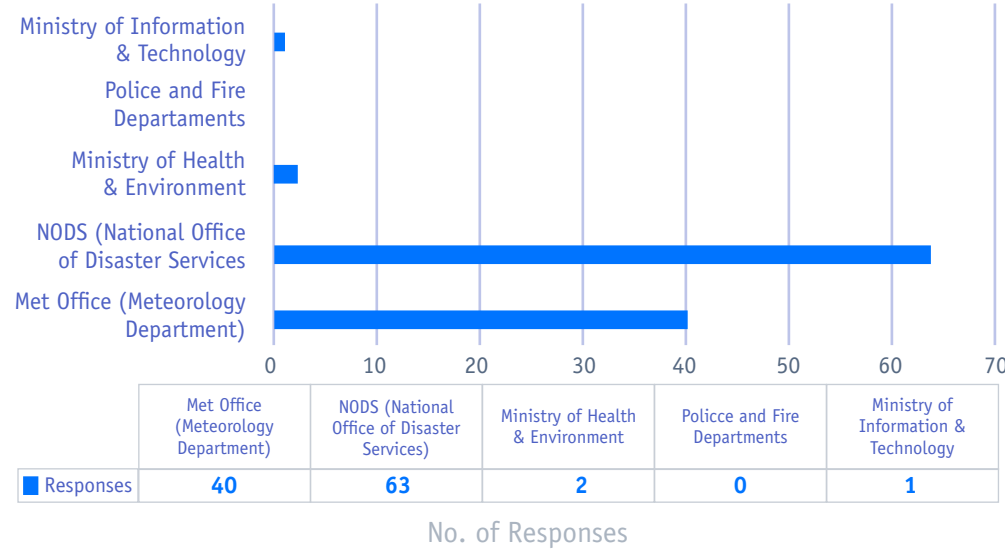
The preliminary results of the survey showed a fragmented understanding of the EWS. While there was increased awareness and knowledge of disaster shelters, for example, the majority showed little or uncertain knowledge of their community evacuation routes and other components of the EWS. This information was, and will be, key in informing the design of EWS awareness and education campaigns, as well as designing evacuations drills.



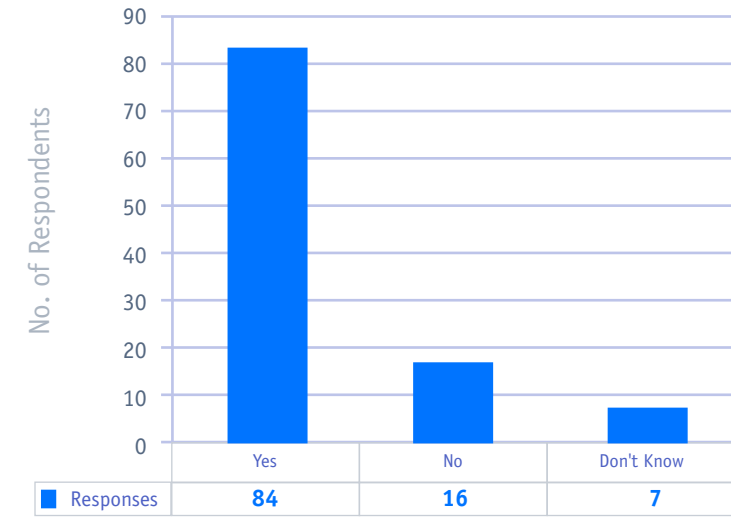


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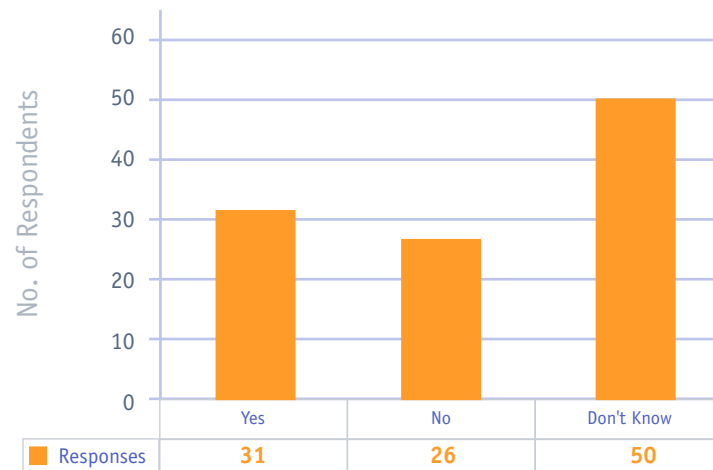
### 7) Which agency is responsible to notify you of an impending disaster?



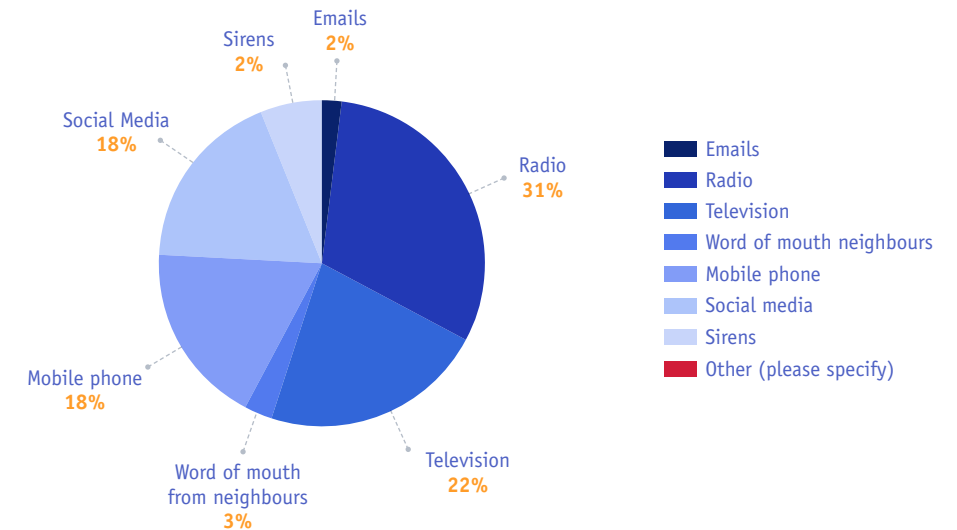
### 14) Does your community have a shelter identified where people can go in the event of a disaster?



### 13) Does your community have evacuation routes?



### 9) What is the best way for you to receive an early warning?





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## 4.2 Community Awareness & Knowledge Survey

Drill scripting had been identified as one of the weakest points in the EWS of Antigua and Barbuda. Over the years, NODS has promoted the strengthening of drill scripting capacities, both in writing and in executing the scripts.

In this context, a three-day drills & alert scripting training was conducted by NODS for key EWS-related agencies, from the 13th to the 15th of November 2018 in St. John's, Antigua. 29 officers from the following agencies were trained: NODS, Police Department, Fire Department, Antigua Barbuda Defence Force & Coast Guard; Ministry of Health, Wellness & Environment; Emergency Medical Services; Ministry of Agriculture, Fisheries & Barbuda Affairs; Antigua Barbuda Red Cross; Meteorological Services; and the Ministry of Information. The training sessions were imparted by the Director of NODS and the NODS Public Relations Officer.

The training focused on three aspects. First, it focused on the overall conceptual framework for disaster management, the pillars and the cycle of disaster management (prevention, mitigation, preparedness, alert, response, rehabilitation, reconstruction and recovery), key terminology, the country's national disaster management organization, the emergency communications network, and the links of disaster management with sustainable development. This served to strengthen concepts and level participants' knowledge on the topic.

Secondly, it focused on the five types of exercises carried out as part of preparedness. This included orientation seminars - an informal discussion, designed to orient participants to new or updated plans, policies, or procedures; table top exercises - key personnel discussing simulated scenarios in an informal setting; operation-based exercise or drills - a coordinated, supervised activity usually employed to test a single, specific operation or function; functional exercises - an activity that examines and validates the coordination, command, and control between various multi-agency coordination centres; and full-scale exercises - a multi-agency, multi-jurisdictional, multi-discipline exercise involving functional and "boots on the ground" response. The importance of community buy-in, as well as practical exercises of writing evacuation drill objectives, were also part of this module.

The third day of the training was focused on alerting, that is, communicating alerts and warnings. Participants reviewed the responsible alerting agencies and the existing communication protocols. The training highlighted the principles of alerts, their content, and CAP system alert message drafting. Practical exercises were carried out to add to the previous drill objectives, scenarios, and warning alerts.

The training evaluation scored high in usefulness and likelihood of being put into practice.

## 4.3 Tsunami Community Drill

In the past five years, NODS has carried out tsunami drills with all pre-schools, schools, and government offices in identified tsunami impact zones. These have been part of the efforts to fully operationalize the national MHEWS and integrate CAP into them.

Drills have several complementary goals: they test the community's ability to receive alerts, and their knowledge of evacuation routes and established safe meeting zones; they provide information for observers and evaluators from the emergency authorities and community emergency volunteers to identify the weaknesses the community has in following the procedures of the drills (including challenges for elderly, children or people with a disability), and make the necessary adjustments to evacuation plans as well as awareness and educational needs; and they serve as educational exercises in and of themselves.

A whole community-level tsunami drill was planned and carried out in Bethesda-Christian Hill, a community on the southeast of the island of Antigua. The decision was to start with a small, simple location that would pilot the process in Phase I, and then adjust and incorporate the lessons for drills in larger, more complex communities in Phase II. The intention was to then create adjusted and differentiated guidelines for different scales/communities, taking into consideration distinct contexts and realities.



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The community for this pilot was chosen with the following criteria:

- It is one of the most vulnerable areas to tsunamis in the country
- It is a low-density population community
- It is relatively homogenous with mostly English-speaking residents
- Its residents are mostly permanent dwellers with low re-location rates

In Phase II, it is envisioned that drills will be replicated for the community of Green Bay and Grace Farm. This is one of the larger and more densely populated communities in Antigua and Barbuda. It is one of the most diverse as well, where residents are English, Spanish, French and possibly Arabic speaking. This will entail significant changes in the guidelines.

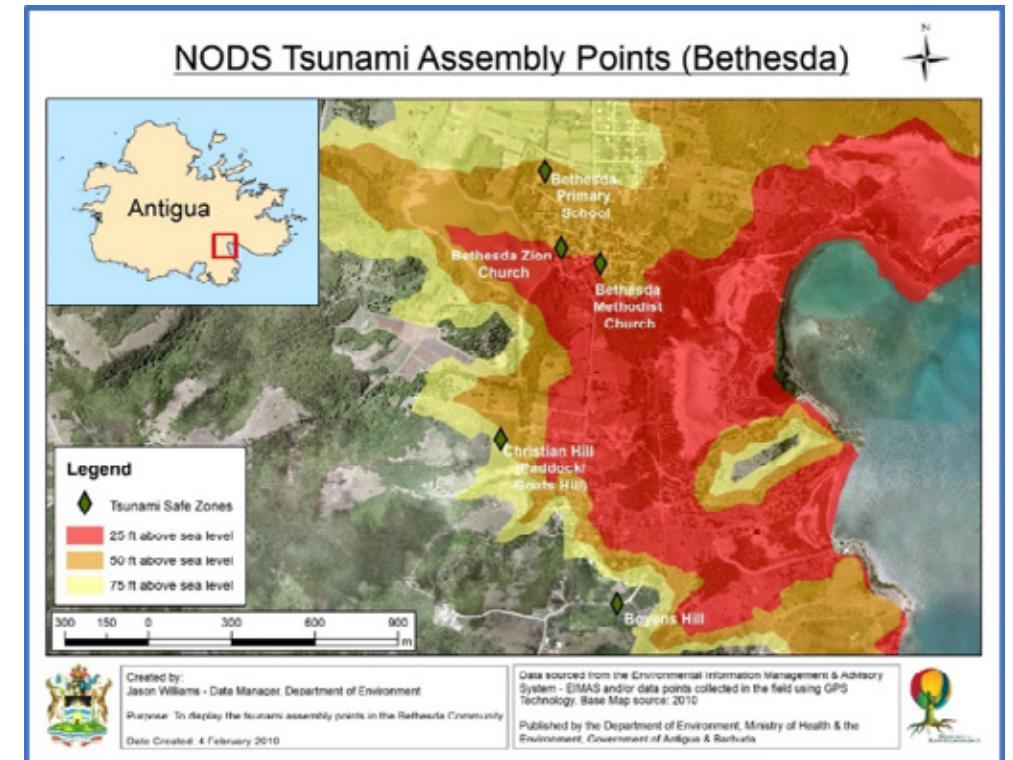
#### a. Pre-Drill Activities

Seven pre-drill preparatory and training activities were carried out, during the months of November and December 2018.

**Stage 1. Engage Leaders:** A meeting with community leaders was conducted to explain the process of the tsunami drill, achieve their engagement and commitment, and inform them of the basic principles and phases of a drill.

**Stage 2. Train Agents:** There was a training meeting with the same community leaders, DDCs, volunteers for disaster management at community level, and key agencies to develop the purpose, the objectives, and the scope of the drill, thus involving them directly from the inception and making them active participants in developing the drill script. This participation also included the definition of evaluators and observers that would play roles in analysing and reviewing the drill.

**Stage 3. Sensitize Community:** A community sensitization session was held to inform the general public about the drill, what it would entail, and the expectations of the exercise.



**Stage 4. Debrief Community:** A second final briefing with the community took place a few days before the actual drill to inform them in more detail about what was planned.

**Stage 5. Identify the Evacuation Routes:** The emergency evacuation routes to be taken by the community were identified.

**Stage 6. Install Signage:** Tsunami inundation signs and tsunami assembly point were installed.

**Stage 7. Walk-through:** NODS and evaluators carried out a walk-through of the community to ensure everything was in place for the drill. This included testing the public address system and other evacuation-relevant equipment, such as go-carts for injured or mobility-limited people.



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## b. Drill Activities

On Saturday, 26<sup>th</sup> January 2019, NODS executed the drill with the Bethesda community. A total of 139 residents participated, with the majority arriving under 35 minutes at the five designated zones. The results were as follows:

Assembly Points	No. of Resident Arrival
Bethesda Primary School	90
Bethesda Zion Church of God	24
Bethesda Methodist Church	14
Bethesda Methodist Church	0
Christian Hill (Goat Hill/Paddock)	11
<b>TOTAL</b>	<b>139</b>

The drill was carried out in the following stages:

**Stage 8. Alert:** The alert was sent out using the CAP; existing sirens were activated.

**Stage 9. Evacuation:** The evacuation drill took place, while designated evaluators and observers annotated any challenges observed while the community members made their way to the assembly points.

**Stage 10. Record:** Arrival time, the number of people arriving at assembly point, and issues they had were recorded.

**Stage 11. Debrief:** People were debriefed about the results of the drill.

## c. Post-Drill Activities

To finalize the exercise, two more activities were carried out.

**Stage 12. Stock-taking:** A meeting of evaluators and observers took place with NODS immediately after the drill to take stock and report back on the four main

elements under review for the drill: awareness, participation and attendance, challenges, and signage. The lead evaluators for each assembly point were asked to provide an in-depth review of their designated assembly points.

**Stage 13. Reporting:** The final step was the preparation of the report of the drill exercise, outlining the results, lessons, and recommendations that would inform the next exercise.





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## 5. RESULTS

- EWS awareness and knowledge baseline established in four vulnerable communities
- CAP system operational and CAP mobile app tested on a community, in addition to other traditional methods
- 29 officers from ten key national agencies trained in drill scripting and alerting
- 139 community members sensitized and informed on their evacuation routes, assembly points and evacuation procedures, and carried out an evacuation simulation
- Five tsunami assembly points identified and geo-referenced
- Additional evacuation routes signage added in the community of Bethesda



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## 6. SUSTAINABILITY

**Ownership:** Overall, the entire initiative demonstrates a high level of ownership from NODS, who fully led the activities, built on the work the country had been carrying out, and continued to enrich the knowledge and tools the country already been developing. Most materials, methodologies and trainers for the activities were from NODS itself, as the only person hired was incorporated as a permanent staff member within NODS. Creating and developing local capacities and reducing the use of consultants was an expressed decision and approach for this initiative.

**EWS Communication Strategy:** In the next phase, a key element that will maximize efforts to integrate CAP into EWS, as well as strengthen alert and evacuation capacities in the country, will be the development the EWS communications strategy. The NODS Communication Officer is in charge of leading this effort.

**Replication of Drills & Drill Guidelines:** Developing well-packaged drill guidelines, which incorporate the lessons of the Bethesda drill and the planned drill in Green Bay, will reinforce the country's ability to replicate this practice routinely in other communities. This is already under consideration as a strategic line of work.

**CAP:** The further expansion of the equipment base (e.g. sirens) and further testing of the CAP, including the CAP app and text-messaged base alerts, would allow for scale-up of this effort. Other areas of support in the next phase could be the provision of expertise and good practices in improving messaging and alert scripting, incorporating gender considerations, targeting persons with disabilities, and adapting to the cultural context.





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## 7. LESSONS AND RECOMMENDATIONS

LESSONS LEARNED	RECOMMENDATIONS
<p>In terms of the alert scripting and messaging, a challenge that was identified was the difficulty of referencing accurately the zones for localized alerts given colloquial speech, and anecdotal and cultural knowledge. If the official names of the locations were used, there was a distinct possibility that the residents receiving the alerts would not recognize them and not take the appropriate actions. The need to collect and incorporate the colloquial references used by the community was acknowledged.</p> <p>The use of overly technical jargon was also identified as a challenge for the comprehension and response to alerts by the population.</p>	<p><i>Alert Scripting and Messaging:</i> Include community-recognized landmarks as start and end points in the alert messages. Collect the most well-known references and incorporate them in community mapping exercises to feed into CAP databases.</p> <p><i>Appropriate Terminology:</i> Use simple layman terms, except in the case of medical alerts, where both scientific and informal names could be used to inform on symptoms of diseases and forms of transmission. NODS should lead more discussions to determine the most appropriate language, for locations and scenarios, and develop templates as guidance.</p>
<p>Another key challenge was the communication ‘dead zones’ that existed in some agencies, where telecommunication devices (radio, cells, TV, etc.) were not allowed and therefore employees were not alerted.</p>	<p><i>Communication:</i> Update the Disaster Management Act to address this gap, map key dead zones, and look at alternative warning systems that could reach them.</p>
<p>In terms of conducting community-wide drills, the pilot in Bethesda provided lessons:</p> <ul style="list-style-type: none"> <li>• More sensitization, training, and facilitation are needed with the community, particularly if there are drills for larger, more densely populated and diverse communities.</li> <li>• More attention is needed to avoid blind spots in the signage indicating the way to assembly points; Assembly Points didn’t contain instructions on what to do on arrival, which could be critical in a real evacuation if no emergency personnel are there to provide guidance.</li> <li>• Conduct more testing on the reach of sirens and identify zones not covered.</li> <li>• Mobilizing the elderly and disabled was a major challenge, especially going uphill to the assembly point. It took one resident 30 minutes to push an elderly relative uphill in a wheelchair.</li> <li>• Children participated more actively and quickly than adults, which indicates the positive effects of awareness-raising exercises and annual tsunami evacuations that have been carried out at the schools. It signals the effectiveness of repeat drills, which should be replicated on the communities at large.</li> </ul>	<p><i>Community-wide Drills:</i> Replicate drills in larger communities using these key recommendations, particularly for the planned drill in Green Bay:</p> <ul style="list-style-type: none"> <li>• Given the population density of Green Bay, hold a minimum of four to six community sessions to capture a broader and more diverse cross-section of the community.</li> <li>• Package and translate the sensitization and training sessions and have multilingual facilitators in Spanish, French and Arabic.</li> <li>• Draft a basic text with instructions for assembly points and incorporate into future signage.</li> <li>• Incorporate siren coverage as a test exercise during the preparatory walkthroughs to map the out-of-range spots, particularly at higher points.</li> <li>• Examine options for the evacuation of elderly and other people with mobility disabilities, particularly the possibilities of assigning alternative evacuation routes depending on the location of their residence, as well as how to make better use of the available stock of evacuation go-carts for these residents.</li> <li>• Hold discussions with mobile network providers to establish a link with the CAP software so that residents can receive alerts via text messages.</li> </ul>



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LESSONS LEARNED	RECOMMENDATIONS
<ul style="list-style-type: none"> <li>The community in general gave positive feedback on receiving the alert notifications on their mobile devices through the CAP app. They were alerted in their homes without having to turn on radio or television. Nevertheless, residents also raised concerns that the CAP app relied on the availability of WiFi or data plans, which wasn't always accessible or affordable.</li> <li>One of the assembly points was not used at all, as there was a perception of flood risk and physical access barriers; this highlighted the need to fully involve and incorporate local knowledge during the location of assembly points.</li> <li>Inattentive driving during the drill was observed by those not participating in it, which could further put people at risk.</li> <li>Increased participation was observed in residents living near a church that made weekly announcements about the drill prior to the exercise. There were previous attempts to provide DRR education to other communities via church announcements and engagement of DDCs with churches, but these efforts were never sustained.</li> </ul>	<ul style="list-style-type: none"> <li>Determine basic rules, such as no driving in evacuation routes during evacuation drills, and communicate these to the community as part of the drill preparation.</li> <li>Include consultation on assembly point locations as one of the points in the community sessions for drill preparation.</li> <li>Incorporate engagement with influential local actors, such as churches of all denominations and radio stations, into the EWS education and communication strategy.</li> <li>Develop different procedures and steps to carry out a community wide drill into an easy, community-friendly drill guideline to package the entire methodology, stages, session agendas, messages, observer roles, etc.</li> </ul>
<p>In terms of the overall planning and implementation of the Priority Action, care should be taken not to roll them out too soon after a major disaster, given that in small islands, staff is limited and over-stretched leading the response and recovery. This was a key challenge faced by the country, as the priority action was not fully factored into the Country Work Programme Activities of 2018, and NODS was responsible for coordinating recovery, making it difficult to adjust plans.</p>	<p><i>Priority Action Planning and Implementation:</i> Ensure sufficient flexibility in projects to factor in the constraints of staff in the context of disaster response and recovery, and put mechanisms to revise timeframes for implementation in place. Plan for such activities in the Country Work Program, so the necessary time and resources can be allocated.</p>
<p>Some challenges were faced at the beginning, as the division of roles and responsibilities for implementation was not as clear as it could be between NODS and the Antigua and Barbuda Red Cross.</p>	<p><i>Implementation Responsibilities:</i> Develop the Priority Action into a more detailed document and workplan, with clear implementation arrangements. This is particularly important if the guiding document is regional or multi-country and therefore limited at the national level. Include quantifiable indicators, targets and baselines; monitoring responsibilities and strategy; management structures; and implementation mechanisms, so that implementing partners on the ground have a clear framework of reference for coordination, delivery and follow-up.</p>
<p>There is an extremely small pool of goods and services suppliers in the small islands, who are also the providers for all other activities conducted by the recipient national counterpart. This makes the requirement for three quotations unrealistic and generates delays in the disbursements between the agency and its vendors.</p>	<p><i>Supply and Disbursement:</i> Hold coordination meetings with the national counterpart from the beginning to communicate what the implementation and disbursement arrangements will be, so that the counterpart can plan accordingly and inform on the potential timelines of payment with its service providers. Explore the use of LTAs and multiple-service Purchase Orders to reduce use of reiterated quotation for every service.</p>



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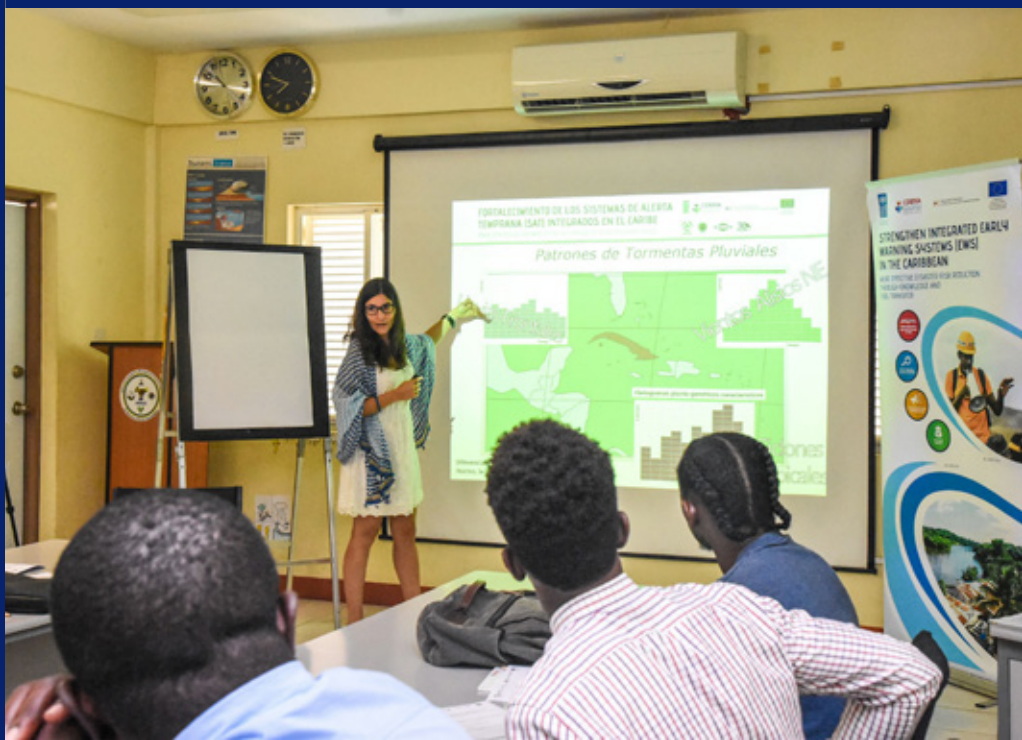
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## 8. CONCLUSION

Similar to the Dominican Republic, Dominica, SVG, and Saint Lucia, Antigua and Barbuda has advanced in policy making for early warning systems, through analysis of gaps, creation of emergency evacuation drills, and planning a roadmap forward. This process has reinforced countries' understanding and identification of the strengths and gaps in their early warning systems, the standards for people-centred multi-hazard systems, and promoted commitment to addressing potential risks and threats with prioritized actions plans.

Each of the four pillars of a robust early warning system – risk information, monitoring and forecasting, dissemination and communication, and response capacity – play a significant role in preparedness and early action. Through close collaboration with technical advisors and support of external actors, Antigua and Barbuda built upon on tested tools and methods, and leveraged previous expertise in early warning systems, preparedness, and risk reduction at a national and community level. Antigua and Barbuda's case also highlights the efforts of a country relying on its own accumulated knowledge and opting to multiply those capacities with national know-how and personnel, setting out on the road to autonomous, nationally-led development.

With lessons to be learned and recommendations to be applied, the efforts in Antigua and Barbuda serve as an example for other countries that seek to improve their EWS. This systematization aims to make a fruitful contribution to the region's knowledge on preparedness and disaster risk reduction practices.