GOVERNMENT of ANGUILLA, B.W.I.

THE NATIONAL WARNING SYSTEM PAST, PRESENT AND FUTURE and IMPLEMENTING THE REGIONAL RISK REDUCTION NETWORK

Lessons Learned and put to good practice

In 2006 Anguilla had no programmes, protocols, requirements or mechanisms for public warning.

In 2006 Anguilla agreed implementation of legislation and public warning systems based on the Common Alerting Protocol

CAP Timeline

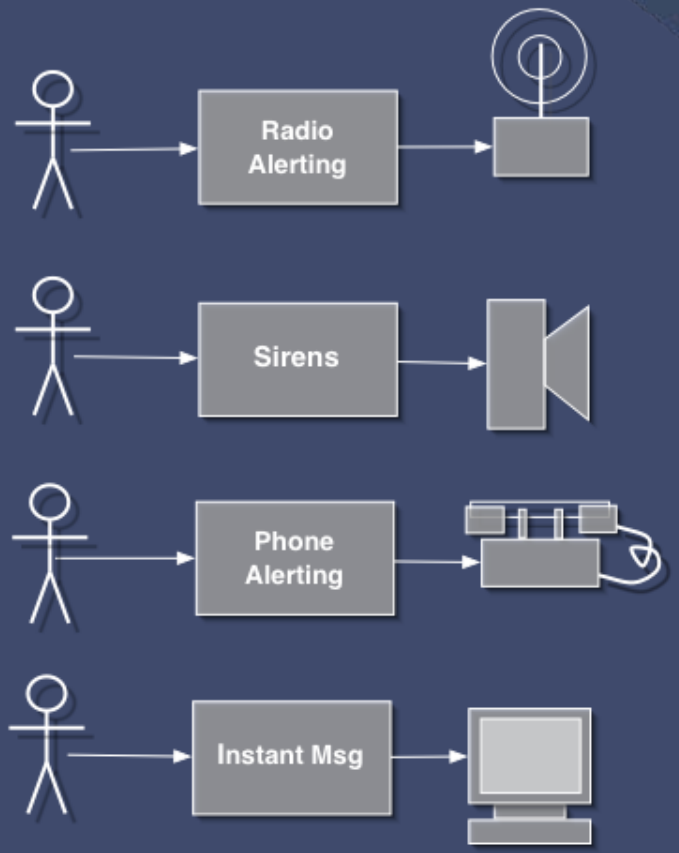
2000 - “Effective Disaster Warnings” study published

2001 - CAP Working Group and Partnership for Public Warning form;

2002 - CAP draft specification and prototype field trials

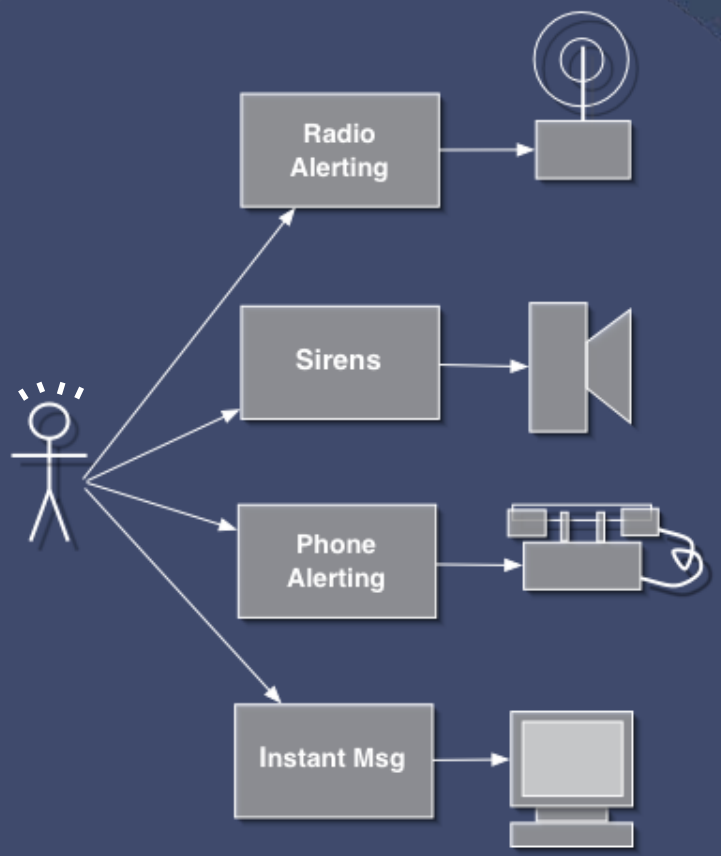
2003/4 - OASIS Emergency Management Technical Committee CAP 1.0 adopted, international implementations begin

Historically…



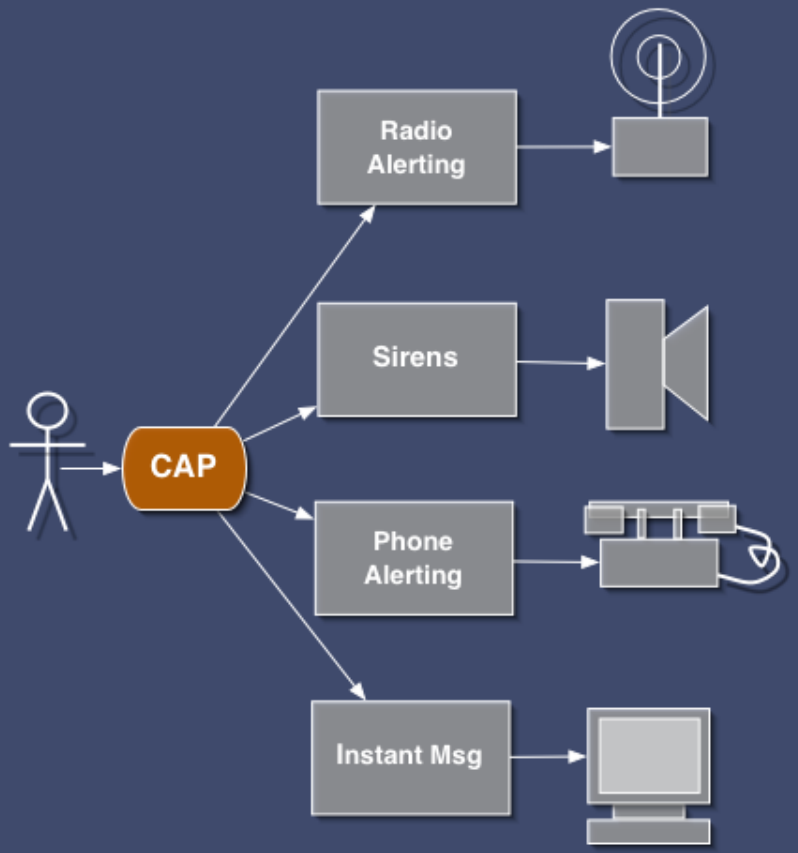
- Multiple systems
- Multiple purposes
- Multiple operators

Today's reality…



- Single originator must activate each system individually

Using CAP…



- One activation triggers multiple systems
- Consistent, complete messages
- Inputs from varied technologies – EMS Systems, Gauges, Posting Tools

The Anguilla National Warning System
1st Caribbean CAP Implementation
-
R3I
1st Multi-National
Mutual Aid Warning System

CAP Implementation in Anguilla

Phase One included piloting then installing **RDS** FM Radio receivers and defining the larger system plan.

Phase Two involved installing and integrating the Common Alerting Protocol (**CAP**) network backbone, a web based activation **interface**, Radio Broadcast **interruption**, **text to voice** broadcast, and computer **popups, email** etc. for Government Internal.

Phase Three will include a **public alert registration** server that will address **non English speaking** and **challenged** populations and allow the public to register for al l island alert and zoned (targeted) alerts.

POLICY FOR USE OF THE DISASTER ANGUILLA NATIONAL WARNING SYSTEM (ANWS)

POLICY. The purpose of this policy is to **establish authority** for system administration, control, access, maintenance and use of Disaster Alert, Notification and Warning Systems, hereafter referred to as ANWS.

The ANWS should be used to alert households and businesses of imminent or active threats to people and property in their area. In order to earn and preserve the public's trust, confidence and support, the ANWS **will only be intrusively used in emergency incidents that may affect public safety**. Only those with proper training and authority to use the system will activate the ANWS.

DEFINITIONS.

A. **ACTIVATOR**. Pre-Approved personnel, per this document trained to activate the NWS. Activation will be on behalf of an approved REQUESTOR.

B. Active Incident. An active incident is one currently impacting the lives, the property or the safety of the public.

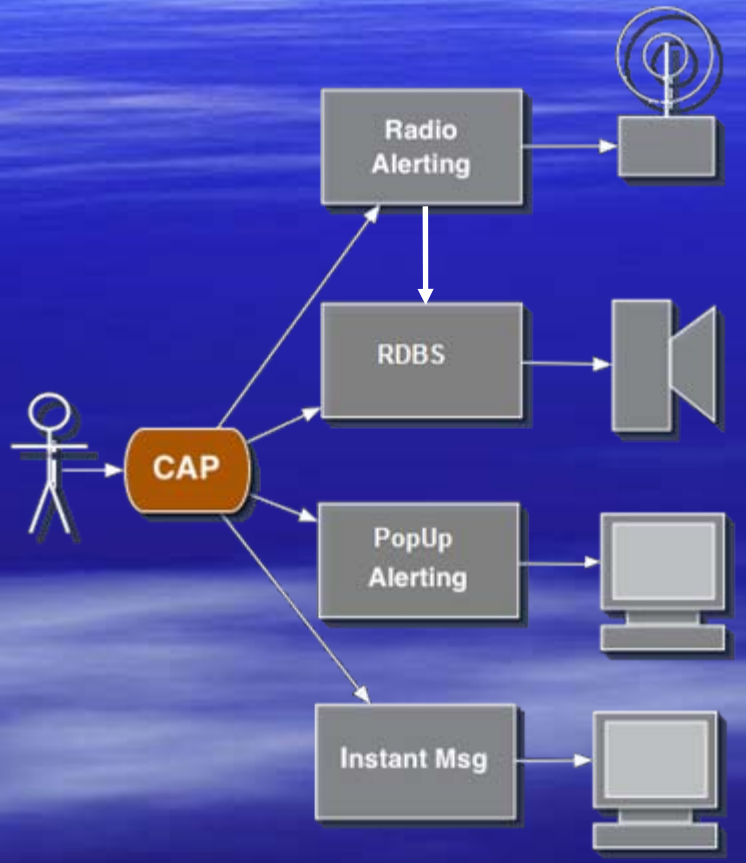
C. **At Risk**. Any person(s) or area of a community whose safety could be directly endangered by an emergency situation or incident.

D. AUTHORIZER. Pre-Approved personnel, per this document, identified to give permission for an ACTIVATOR to activate the NWS on behalf of a REQUESTOR. For a list of AUTHORIZERS refer to Procedure 1 Section C or Procedure 2 Section

Levels of Alert

Level	Description
Actual 0	no threat (news, it, tourism, info, etc)
Actual 1	local contained, not expected to grow, info, reporting
Actual 2	A risk to people who are special needs
Actual 3	Risk to life and health

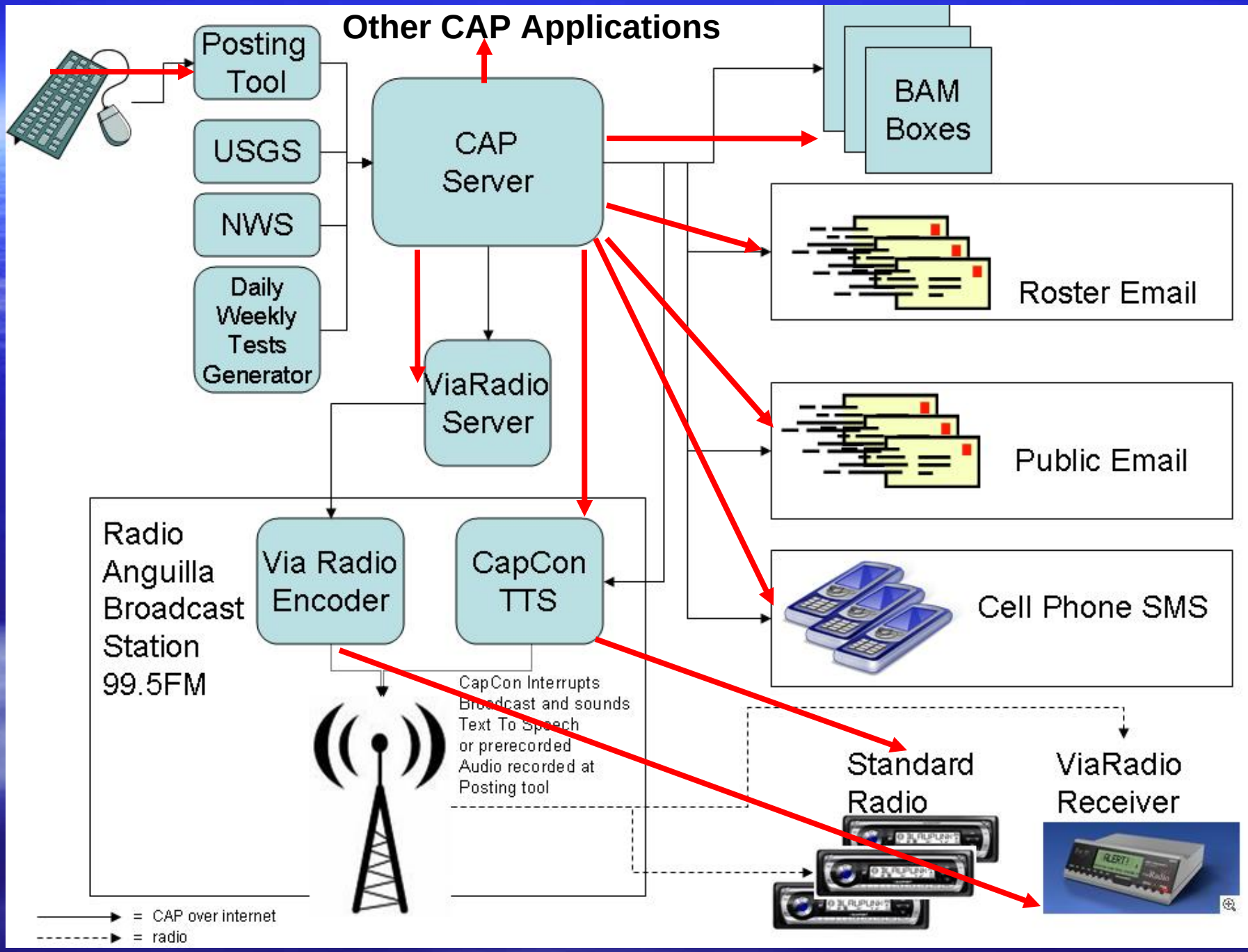
ANGUILLA National Warning System



ANGUILLA **Missing Child** Warning

- Text File Of Alert
- Graphic Of Child
- Voice Recording Look in Yard/Bush
- HotLine Number To Report
- Where to Get More Information

ANWS Interface to CapCon


Other CAP Applications
Posting Tool
USGS
NWS
Daily Weekly Tests Generator
CAP Server
BAM Boxes
Roster Email
ViaRadio Server
Public Email
Radio Anguilla Broadcast Station 99.5FM
Via Radio Encoder
CapCon TTS
Cell Phone SMS
CapCon Interrupts Broadcast and sounds Text To Speech or prerecorded Audio recorded at Posting tool
Standard Radio
ViaRadio Receiver
= CAP over internet
= radio

BamBox Pop Up

SEVERE HAZARD IN YOUR AREA!

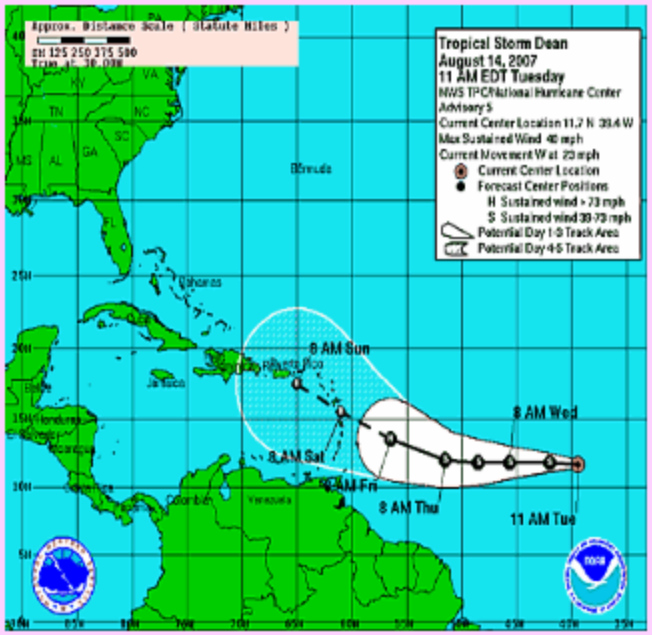
GOVERMENT OF ANGUILLA

DEPARTMENT OF HEALTH

Alert Message

Message Type: Actual

Sent on: December 11, 2007 10:55:22 AM PST



Sent on behalf of:

Department of Disaster Management

Regarding:

HURRICANE WARNING

Situation:

Anguilla has entered the 24 hour cone for Hurricane Sam

Instructions:

Anguilla is being affected by tropical storm force winds.

Please go to the nearest shelter, quickly and bring your shelter kit.

Do not bring alcohol or pets.

For more information contacts:
fdsfds
and listen to local radio and cable

OK

Next Steps

- Complete Phase 3 – Public Side
- Address Multi-Lingual through Profiles;
- Address Challenged Persons;
- Install and Train Activators for the CDEMA Pilot Communities warning System;
- Integration of VMS Signs – LCDD Requirement!
- Agree MOUs for Mutual Aid with another Node; and
- Support the work of other Countries as requested.

Regional Risk Reduction Intitiative (R_3I)

Status of TMT 2

Warning Systems Pilot Project

Sint Maarten 18th October 2010

R3I

The UK Dutch OT's R3I Project

A project to fill gaps in OT's programmes identified by the OT's

Funded by the EU, Coordinated by the UNDP, Barbados.

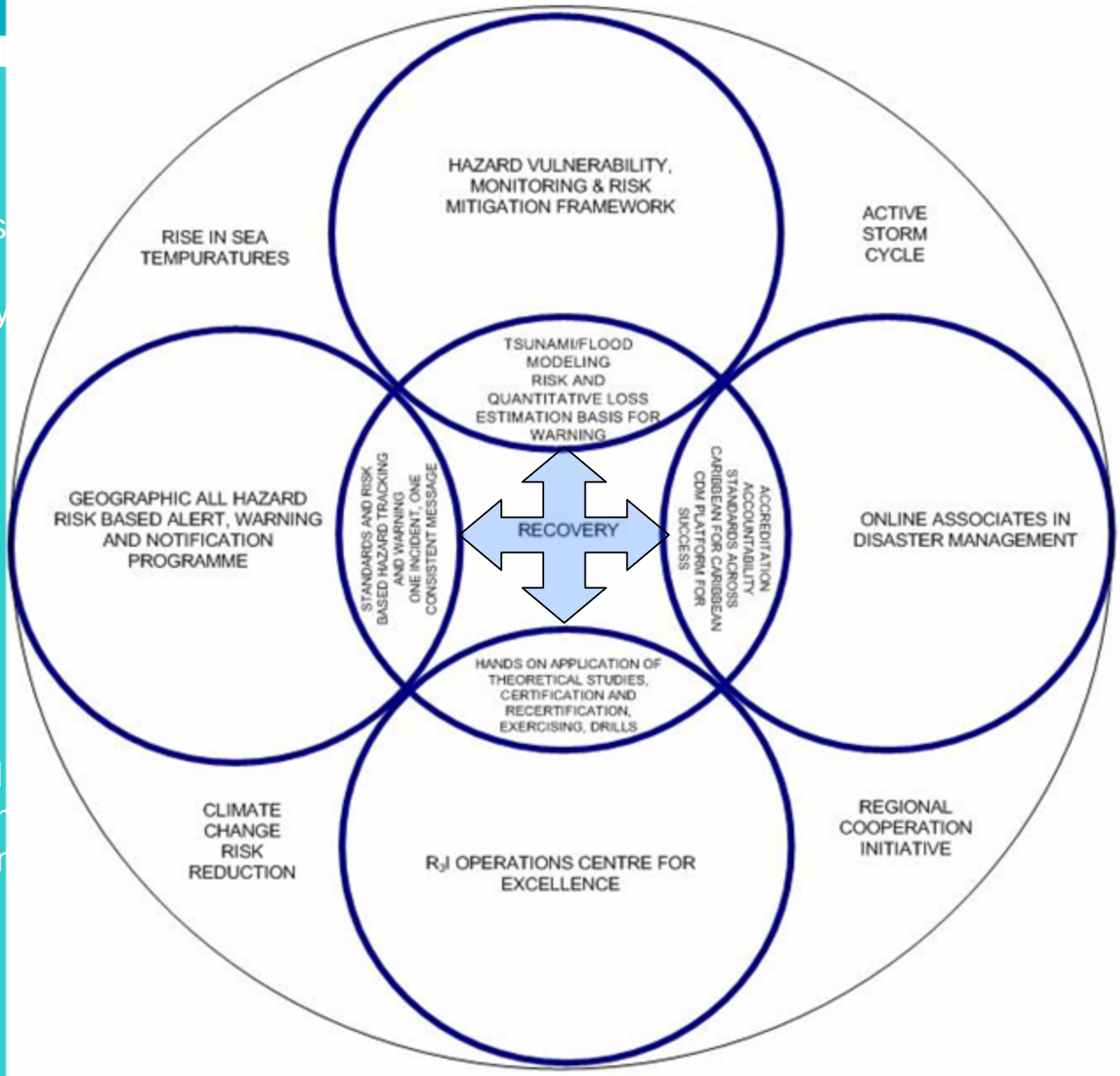
Critical components needed to finish the warning system and Air flights with data take off needed to enable the Hazard, Risk and Vulnerability Assessment.

Could also benefit the hazmat and recovery programmes developmer and the expansion of the Mitigation and business continuity programmes

It is expected it will benefit cross boundary relationships and coordination inherently.

REGIONAL RISK REDUCTION OVERSEAS TERRITORIES INITIATIVE

R_3I

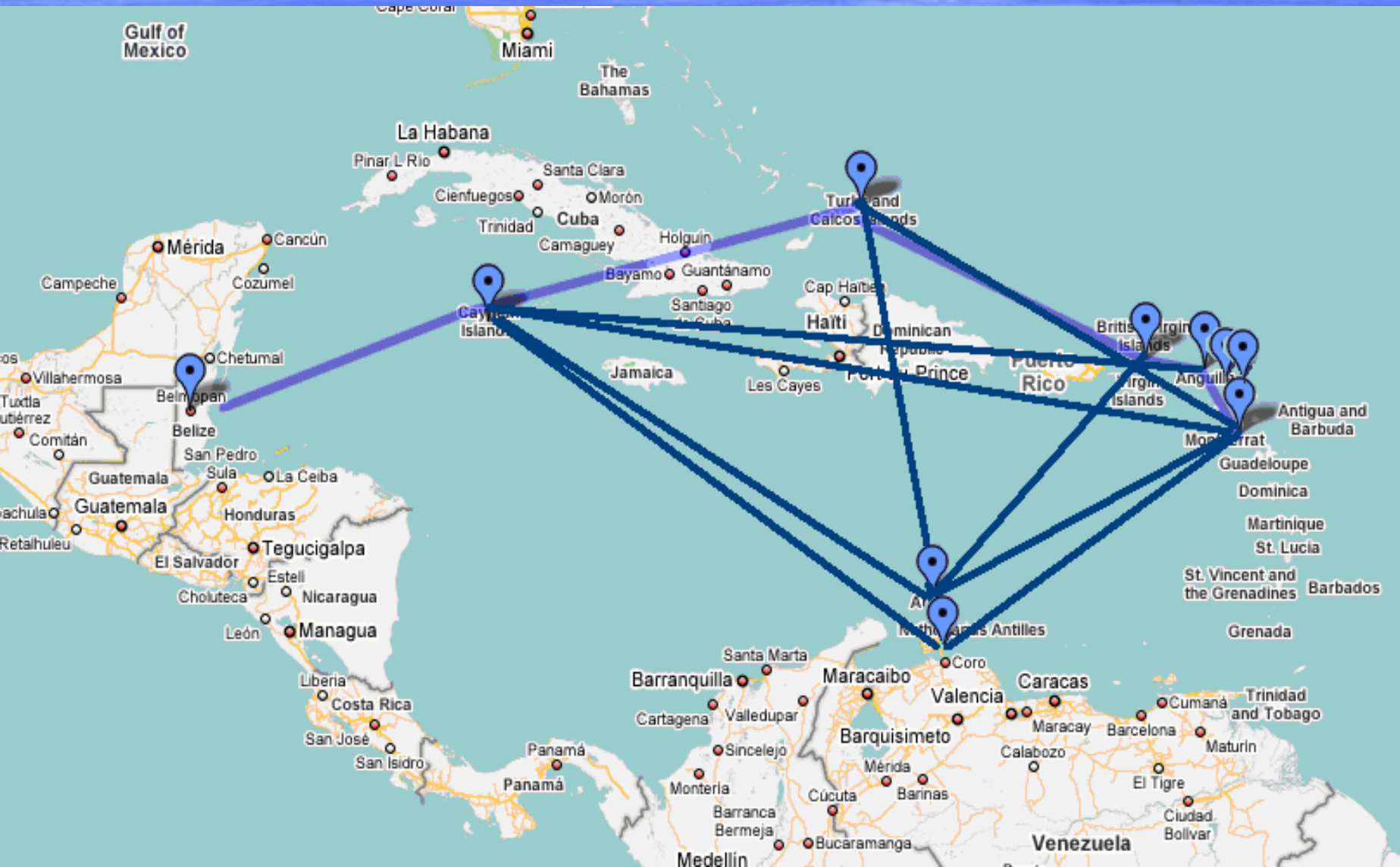


MITIGATING RISK AND SPEEDING RECOVERY FROM EVENTS ASSOCIATED TO WORLD CLIMATE CHANGE

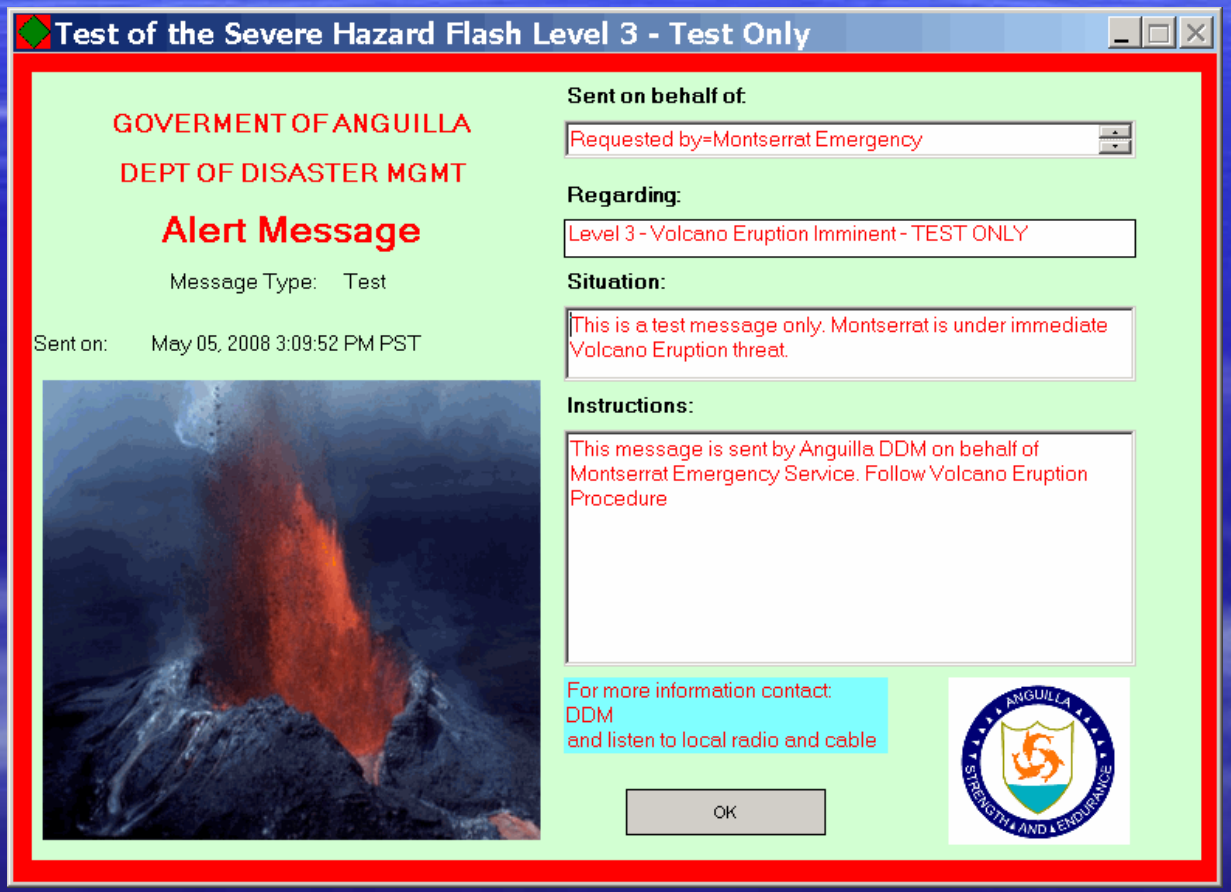
Vision

For A Regional, Standards Based, All Hazard, Early And Public Warning System.

Regional CAP Network



Redundant Activation Capability



Baseline

Identify the Baseline First

Extensive Warning Survey performed integrating:

OECS B-TOOL, Global Warning Survey, IOC/UNESCO GWS Update, ICG CARIB WG3, CDEMA TCHWS, WMO Met Survey and R3I Components

UN Global Survey

An assessment of capacities, gaps and opportunities toward building a comprehensive global early warning system for all natural hazards – over 138 Questions

1. Is there on-going consultation with international agencies on early warning?	yes
	no
If yes, please indicate:	FAO
	WMO
	WHO
	WFP
	ITU
	UNEP
	UNDP
	OCHA
	UN/ISDR
	World Bank
	UNESCO/IOC
	UNICEF
	UNOOSA
	UNU
	USGS
	SOPAC
	IFRC
	NOAA
	ADRC
	others

Slovenia	LAC	Panama	Anguilla	Argentina	Bolivia	British Virgin Islands	Cayman Islands	Columbia (INGEOMINAS)	Ecuador	Jamaica	Nicaragua		WANA	Yemen	Jordan	SUM	%
1		1	1	1	1	1	1	1	1	1	1			1	1	51	100%
		1	1	1	1	1	1	1	1	1	1			1		40	78%
1															1	10	20%

2. Has national legislation or policy been developed for implementing early warning systems?	yes
	no

State City/Station/ Location indicator	*Type and Frequency of observation/ automatic observing equipment*	*Type of MET reports and supplementary Information included*	*Observation system and sites*	*Hrs of operation*	*Climatological information*
1	2	3	4	5	6
ANGUILLA THE VALLEY/ *Wallblake* TQPF	Hourly, Special/ Automatic Weather Station (AWS)	METAR, SPECI	Stevenson Screen used along with an Automatic Weather Station (AWS) providing Temperature, Vapour Pressure, Relative Humidity, surface wind variation, (Direction and Speed) QNH and QFE read outs along with rainfall values	1200 - 2100	Climatological table available
			Cup anemometer 162° from the threshold RWY 07	H24	-
BARBADOS BRIDGETOWN/ *Grantley Adams* TBPB	Hourly, Special/NIL	METAR, SPECI Plain Language	Computer observation station	H24	Climatological Tables available
BRITISH VIRGIN ISLANDS ROADTOWN/ *Terrance B. Lettsome* TUPJ	Hourly, Special/ NIL	METAR, SPECI	Anemometer atop Control Tower	1100-0200	-

METEOROLOGICAL SERVICES
for Civil Aviation
Focused on technology and Protocols

2008 UNISDR Joint Early Warning Questionnaire - Infill of Survey Gaps

Characteristics of natural hazards and related maps							Early warning systems in operation in the country						
Hazard Analysis			*If yes, please indicate:*										
Characteristics of natural hazards (e.g. intensity, frequency and probability) analyzed at the national level.			Hazard maps have been developed	Vulnerability assessments have been conducted	Risk assessments and risk maps developed at national or local level	Maps were used for developing EWS in vulnerable areas	Years of operation of the system	System based on legislation	Annual funding allocated	Data processed in real or near real time	Preformated messages to issue public warnings	Standard Operating Procedure (SOPs) in place	Post-event evaluation used to improve the EWS
Indicate existing hazards:													
Natural hazard	**yes**	**no**	**yes**	**yes**	**yes**	**yes**		**yes**	**yes**	**yes**	**yes**	**yes**	**yes**
Volcanic activity	☐	☒	☐	☐	☐	☐	.5	☒	☒	☐	☐	☐	☐
Lahars	☐	☒	☐	☐	☐	☐		☐	☐	☐	☐	☐	☐
Earthquakes	☐	☒	☐	☐	☐	☐	.5	☒	☒	☐	☒	☐	☐
Tsunami	☐	☒	☐	☐	☐	☐	.5	☒	☒	☒	☒	☐	☐
Landslides	☒	☐	☒	☐	☐	☐	.5	☒	☒	☐	☒	☐	☐
Tropical cyclones	☒	☐	☒	☐	☐	☐	.5	☒	☒	☒	☒	☒	☐
Floods	☒	☐	☒	☐	☒	☒	.5	☒	☒	☐	☒	☒	☐
Severe storms	☐	☒	☐	☐	☐	☐	.5	☒	☒	☐	☒	☒	☐
Drought	☐	☒	☐	☐	☐	☐	.5	☒	☒	☐	☐	☐	☐
Extreme temperature	☐	☒	☐	☐	☐	☐	.5	☒	☒	☐	☐	☐	☐
Dust and sand storms	☐	☒	☐	☐	☐	☐	.5	☒	☒	☐	☐	☐	☐
Avalanches	☐	☒	☐	☐	☐	☐		☐	☐	☐	☐	☐	☐
Famine/food insecurity	☐	☒	☐	☐	☐	☐	.5	☒	☒	☐	☐	☐	☐
Epidemics	☒	☐	☒	☐	☐	☐	.5	☒	☒	☐	☐	☒	☐
Locusts	☐	☒	☐	☐	☐	☐		☐	☐	☐	☐	☐	☐
Wildland fire	☐	☒	☐	☐	☐	☐	.5	☒	☒	☐	☒	☐	☐
Land degradation and desertification	☐	☒	☐	☐	☐	☐	.5	☒	☒	☐	☐	☐	☐

2008 IOC UNESCO Carib EWS Warning Survey

Focused on technical resources and capability for ongoing system sustainability

PART 2

Monitoring and Capturing – Do you have or have access to data from:

- Rain gauges (Manual or Electronic Data)
- Wind gauges (Manual or Electronic Data)
- Water height monitors (Manual or Electronic Data)
- Radar
- Slope Stability Monitors
- Scientific Thermometers
- Electronic Barometers
- Trained Meteorologists
- Seismic Stations
- Tsunami Buoys
- Air Monitoring
- Piezometers
- Body Temperature Entry Gates
- Soil Moisture Monitors
- Tide Gauges
- Crop Yield Gauge
- Fire Towers
- Infectious Disease Monitoring Network
- Other _____

If electronic records can be accessed, are they based on the Common Alerting Protocol (CAP)?

Are you aware of the ITU Warning Protocol CAP? (Yes or No)

PART 3

Warning Dissemination – Do you use, what brand and year installed of:

- FM Radio Broadcast
- AM Radio Broadcast
- Dedicated Emergency Broadcast Radio Frequency
- Electromechanical Sirens _____
- Electronic (Voice Capable) Sirens_____
- Variable (Changeable) Message Signs _____
- RDS or RDBS_____
- Internet
- Pop Ups_____
- Church Bell System
- Flags
- Traffic Information System
- Television Interrupt_____
- Cable interrupt_____
- Vehicle Mounted Public Address (Megaphones)
- Telephone Ring Down (land Line)_____
- Telephone Ring Down (cellular)_____
- Phone Tree
- Hot phones
- Emergency Strobe Lights
- Emergency Pager System_____
- Emergency Management Technology

CDEMA TCHEWS Survey

Key To Response Summary **Question not addressed (left blank)** **Question addressed with yes (√)** **Question addressed with no (X)**	Anguilla	Antigua	Bahamas	British Virgin Islands	Dominica	Grenada	Jamaica	Montserrat	St. Kitts & Nevis	St. Lucia	St. Vincent & Grenadines	Turks & Caicos
Question 2. Legal Framework. Does your country have laws which designate specific government agencies to provide warnings to other government agencies responsible for disseminating public warnings instructing the public to take or prepare to take actions? If yes, please give details.	√	√	√	√	X	√	√	X	√	√	√	X
Question 3. Does your country have a National Platform or other mechanism for providing hazard warning notifications to government agencies and the public? If yes, please give details.	√	√	√	√	√		√	X	√	X	√	√
Question 4: With respect to coastal hazards, for example, has your country established a National Coastal Hazards Warning and Notification Committee or some other coordination mechanism?	√	X	X	√	X		√	X	X	√	√	X
Question 5: Does your country have similar coordination mechanisms at the community level?	x	√	√	√	X			X	X	√	√	X
Question 6: Who (types of persons and agencies) are members of these Committees? For details refer to Country Assessment Protocol Report.	√	√	√	√	√		√	√	n/a	√	√	
Question 7: What authority does this Committee have (decision-making, policy-making, advisory – if yes, to whom--, independent reporting to one agency, etc)?									n/a			n/a
Decision-Making			√								√	
Advisory	√	√		√	√			√		√		

Results

Identify Systems in Place

Monitoring / Detection

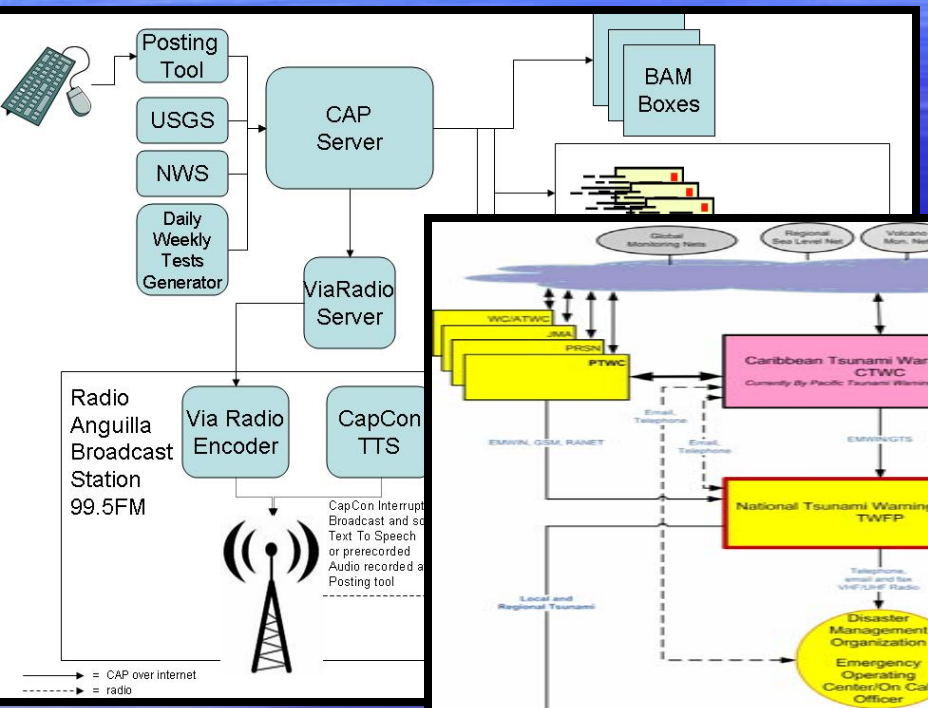
- Seismic Stations
- Tsunami Buoys
- Tide Gauges
- Flow Gauges
- Rain Gauges
- Radar
- Barometer
- Wind Gauges
- Slope Stability
- Air Monitoring etc.

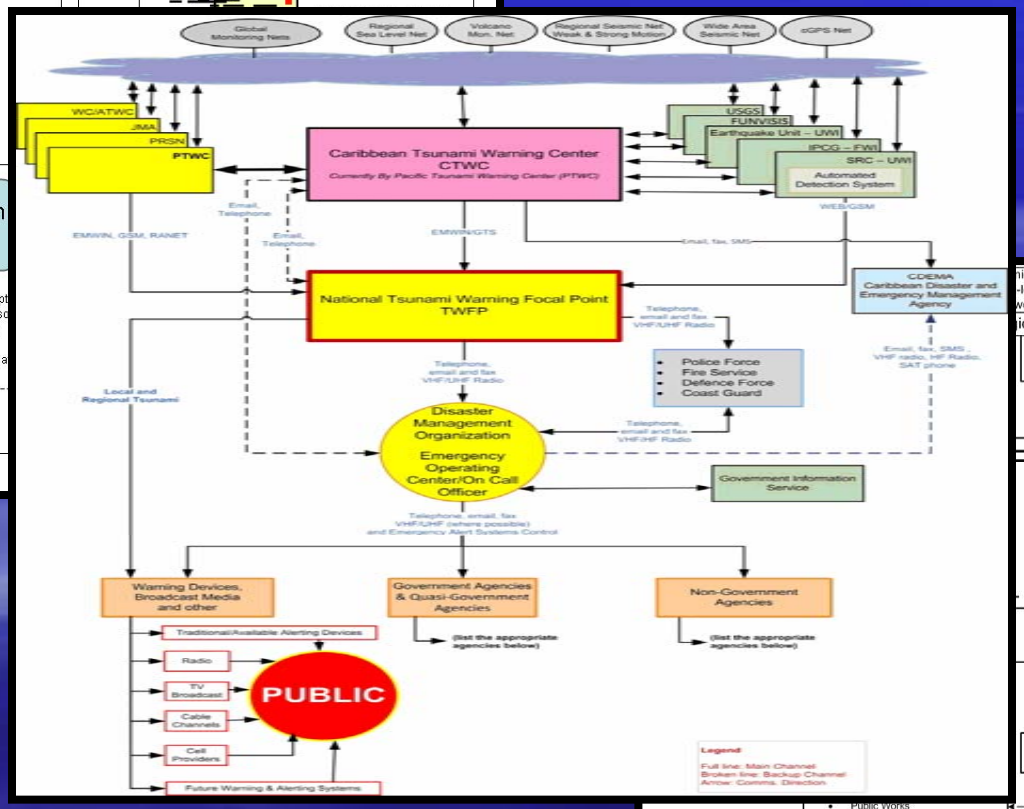
Alert / Warning

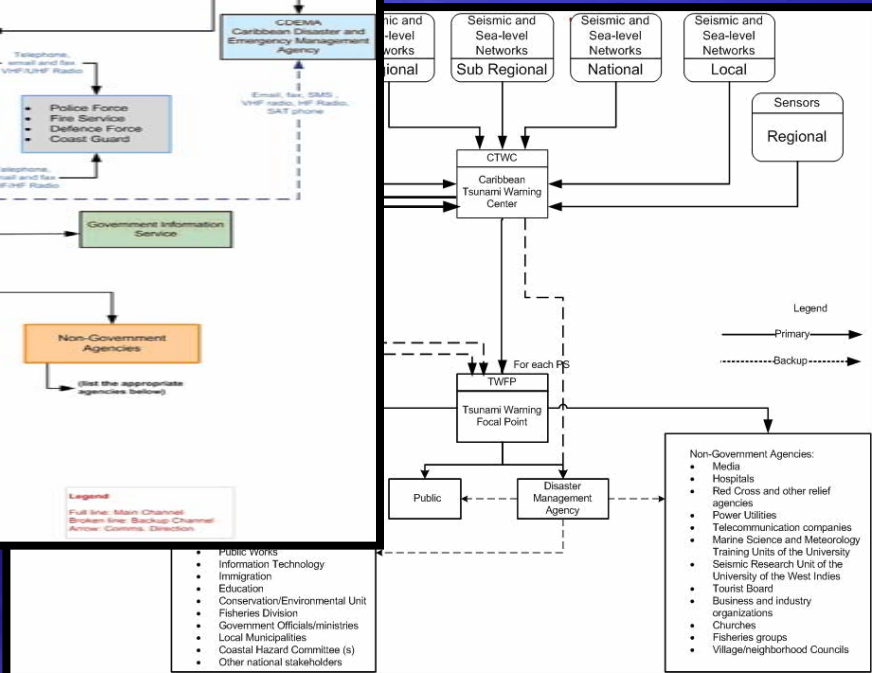
- EMWIN/GTS
- Sirens
- RDS
- SMS
- Email
- Bells
- Flags
- Telephone Ringdown
- Radio/Cable interrupt
- Public address
- AM/FM Radio etc

Identify Networks in Place

Recently Mostly Tsunami Focused But Not All







Elements of a Warning System

- Hazard Assessment / Risk Identification
- Monitoring and Detection Technology - Early
- Dissemination Technology – Public/1st Responder
- Standard Operating Procedures, Policy, Protocols
- Legislative Framework
- Public Awareness and Education
- Testing/Drills
- Ongoing Maintenance

Pilot Scoping

Identify Target Pilots

Assumptions

- Political Buy In Existing
- Model Legislative Framework – Feasibility of adoption during project
- Hazard Assessment – primary hazards identified to address
- Monitoring and Detection - Elements and Sources Available/Planned
- Technology Implementation – Basis for Warning in place
- Public Awareness and Education – Adapt Existing Protocols
- Maintenance – Capacity Building and Funding Verification

Agree Pilot Location Hazard

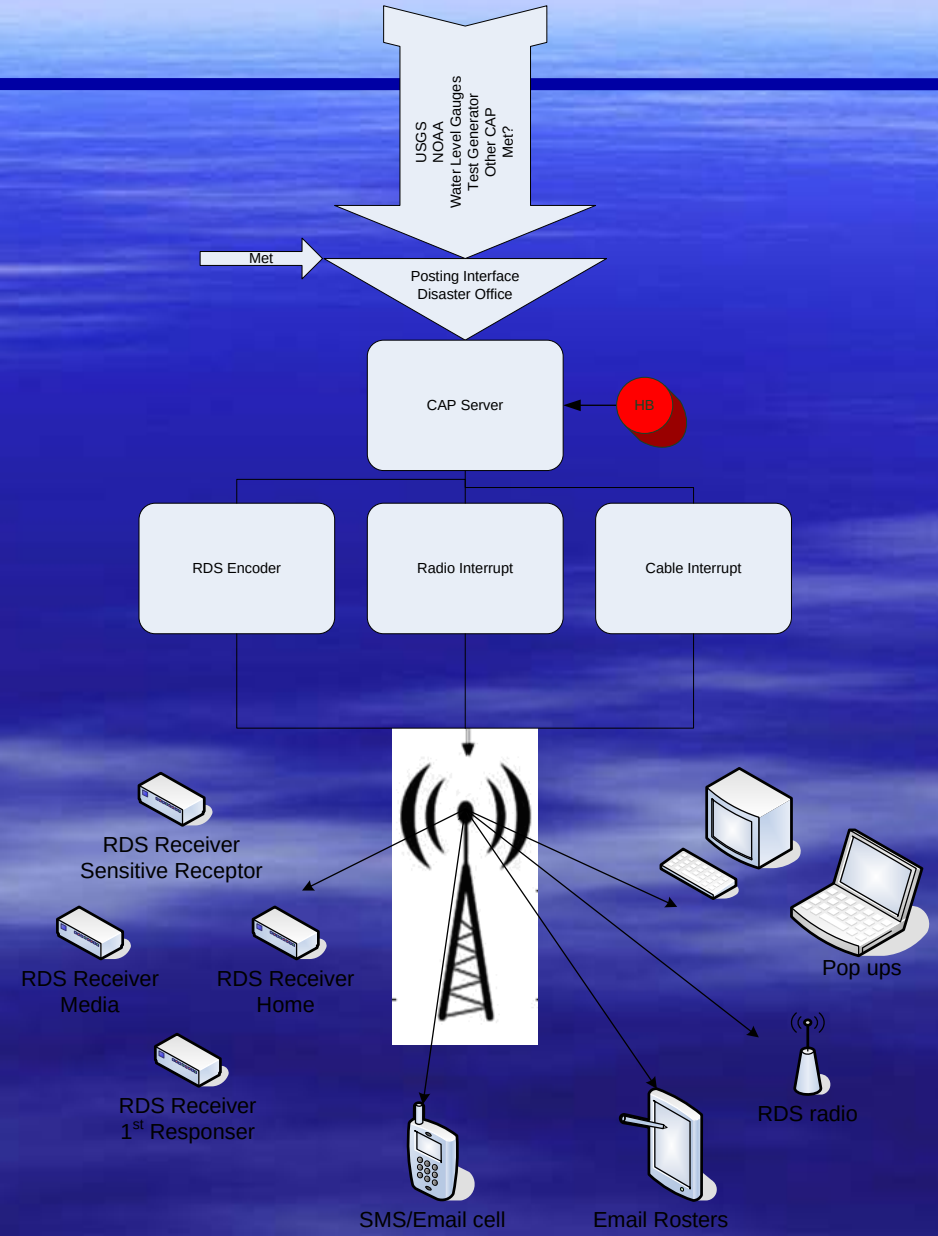
	Anguilla	Montserrat	St Maarten	BVI
Hazard focus	**Hazardous Material**	**Volcano**	**Floods**	**Tsunami / EQ**
Public Warning system in place IT equipment	➢ Legislation ➢ Policy (draft) ➢ Protocols ➢ NWAC - Radio broadcast F/AM - Radio Interrupt - Mounted vehicle PA - RDS Receivers (CAP) - Computer Popup (not public) (CAP) - SMS (CAP) - EMAIL Rosters (CAP)	➢ Legislation ➢ Policy ➢ SOP ➢ Checklists ➢ Live drills ➢ NWAC - Sirens (not CAP) - EAS radio interrupt with RDS messaging system - DMCA audio and video studio with interrupt of local media **(needs more discussion with IT)** - VHF **(to complete under TMT3 and TRAC)**	➢ Related Flood hazard maps - Sirens (Not CAP) - 3 automatic rain gauges (not installed)	➢ Legislation and Policy (linded) ➢ NWAC - Radio AM and FM broadcast - Radio Interrupt - TV interrupt - Cable interrupt - Mounted vehicle - Sirens ? - RDS
Institutional Gaps	➢ SOP for Hazmat ➢ National Warning system training ➢ Education materials ➢ Public outreach	➢ Training to maintain sirens ➢ Maintenance policy or legislation ➢ SOP for new CAP system	➢ SOP ➢ Drills, testing documents ➢ NWAC **(not needed ?)**	➢ SOP and Checklists ➢ Drills, testing documents
Technology required	➢ 1 CAP server and BamBox (for public) ➢ 1 Back Up CAP CONverter or “radio interrupt” ➢ 1 Backup FM radio RDS signal encoder ➢ 50 back-up receivers ➢ 1 Backup CAP server ➢ Hot Button	➢ 1 additional siren (CAP enabled) ➢ Cap base controller to interface with sirens controller ➢ New siren controller and upgrading of 8 existing units ➢ CAP integration of existing RDS including text to speech converter ➢ 1 public CAP server with Bambox (pop-up) and email notifications **(require further discussion with IT)** ➢ Cellular SMS and Text ➢ Hot Button	➢ Cap base controller to interface with sirens controller ➢ Bambox (Pop-up) ➢ Email ➢ **RDS ?** ➢ **SMS ?** ➢ **Radio interrupt ?** ➢ **Via radio ?** ➢ **Hot Button ?**	➢ 1 public CAP server with Bambox (pop-up) and email notifications ➢ 1 CAP CONverter or alternate “radio interrupt” ➢ 1 Backup FM radio RDS signal encoder ➢ CAP Integration of existing RDS ➢ **Hot Button ?**

Identify Needs of Pilot and Hazard

- Anguilla
  - Hazardous Materials
  - Shelter-In-Place
  - HOT BUTTON
  - Complete Public side of AWS
  - Integrate language profiles via CAP
- BVI
  - Earthquake/Tsunami
  - CAP Network, Roster email
  - Integrate ATWC/USGS alerts/activation via CAP
- Sint Maarten
  - Flooding
  - CAP Network, RDS, Rosters
  - Integrate Water Level alerts via CAP
- Montserrat
  - Eruption
  - Replicate Radio System, CAP Network, Popups, RDS
  - Integrate eruption alter via CAP

Sint Maarten Pilot

Proposed



Template SOPs & Checklists

- **SOP A**: For **any potential Flash flooding** whether it is considered local or national:

	SOP A IMMEDIATE ACTIONS CHECKLIST
[ ] 1.	Duty Officer must review the message from the and learn if the is forecast to arrive at
	[ ] a. Does not threaten
	After assessment of the Bulletin, the determines the event does not threaten (insert name of Countries) coastlines. The should continue to monitor information about the event and contact civil authorities to advise that a Bulletin was received; that assessment shows that it will not impact (insert name of Country); and, that no further action is required. (Use Attachment A, page 33, for directory of Civil Authorities' Contact Information)
	[ ] i. Contact the Director, (insert name of Disaster Management Organization).
	[ ] ii. Contact the (insert name of Police Force.
	[ ] iii. Contact the (insert name of Fire Brigade.
	[ ]iv. Contact the (insert name of Defense Force.
	[ ] b. threatens . Initiate Evacuation.
	[ ] i. Evacuate all coastal areas of
	Or
	[ ] ii. Evacuate all vulnerable coastal areas. (Use Attachment B, page xx, for Listing of Vulnerable Coastal Areas.)
	And
	[ ] iii. Notify Civil Authorities. (Use Attachment A, page xx, for directory of Civil Authorities' Contact Information)

- **SOP B**: For **any potential Mass flooding….**

Develop Guiding Policy

- Will not activate in an intrusive manner between xxpm and xx am unless life safety threat/ level 3 threat/flashflood/tsunami etc;
- Will/will not remove individuals from the SMS Notification System, to be provided by xxx;
- Will require approval for activation for non Level 3 incidents via approved SOPs;
- etc

Next Steps for SM Pilot

1. Develop Public Education and Outreach
2. Develop/ Refine Activation Protocols and Policy
3. Develop Drill and Testing Documents, Schedules and Protocols
4. Implement technologies
5. Perform testing and acceptance
6. Develop Maintenance Manuals
7. Capacity Build Technicians and Activators
8. Public Pilot of Activation
9. National Testing
10. Cross Regional Testing (via Caribe WAVE2011)

Next Steps

- Identify Expert(s) in IT, Met and CAP for team;
- Support developing template policy, plans and protocols;
- Recommend scope and schedule of Feasibility Studies;
- Scope 2nd Pilot Implementation;
- Draft Regional R3I System of Systems Diagram;
- Work with ICG and WMO on identifying synergies with other regional initiatives/systems; and
- Support the work of other Countries as requested.

THANK YOU