



**World Meteorological Organization**  
Working together in weather, climate and water

# **Regional Capacities of NMHS in Forecasting of Priority Hazards**

**(Preliminary Results of the Questionnaire)**

**Peter Chen**

**Chief, Data-Processing and Forecasting System, WMO**

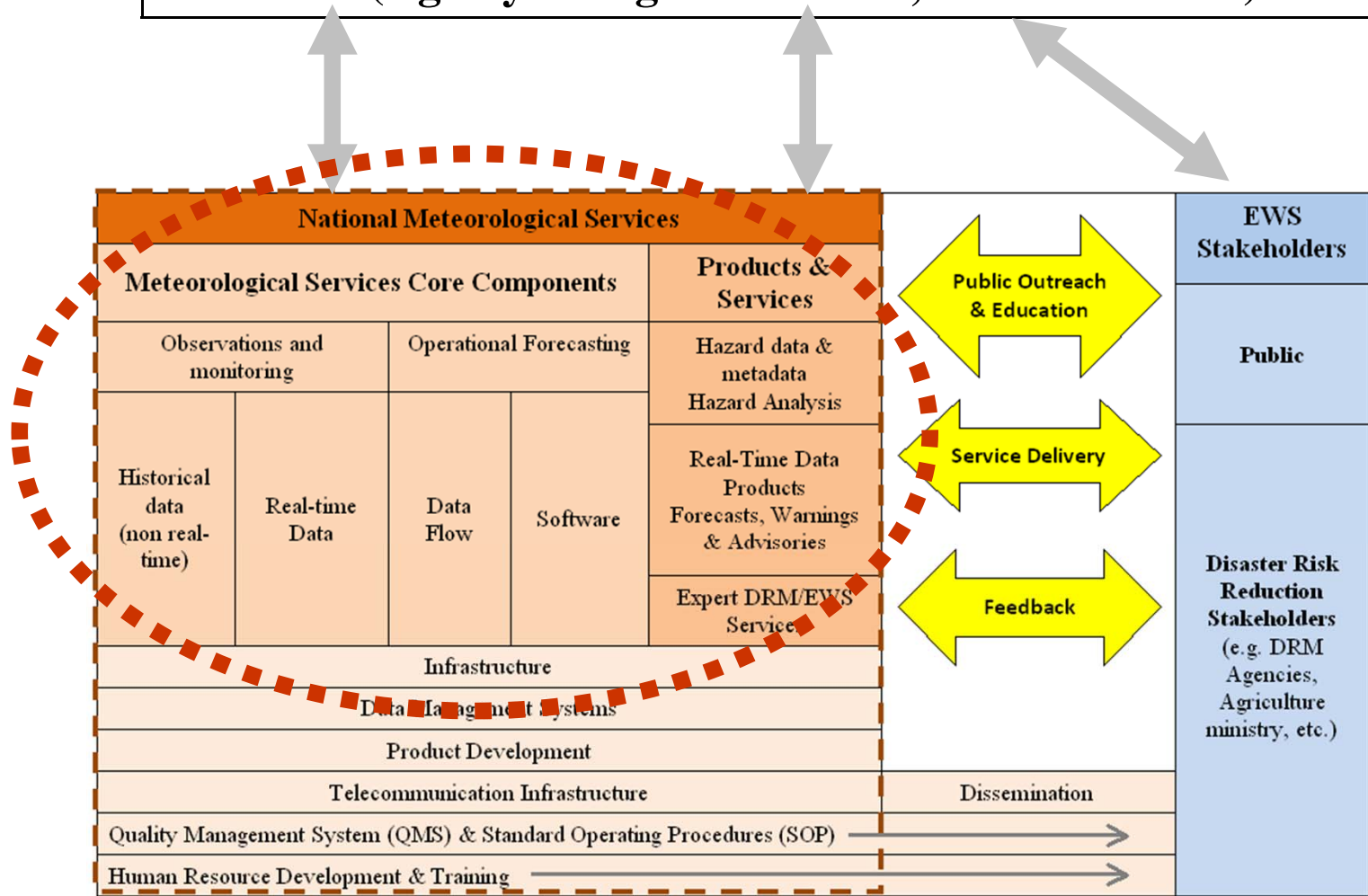
**7th March, 2011**

**George Town, Cayman Islands**



## WMO has documentation on gaps and needs and priorities

**Other Technical Services Cooperating with NMSs and DRM Stakeholders**  
**(e.g. Hydrological Services, Ocean Services)**





*a snapshot:*

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*“Questionnaire to Assess Forecasting and  
Observing Capacities of the National  
Meteorological and Hydrological Services to  
Support Multi-Hazard Early Warning Systems”*

**Preliminary Findings of the Survey**

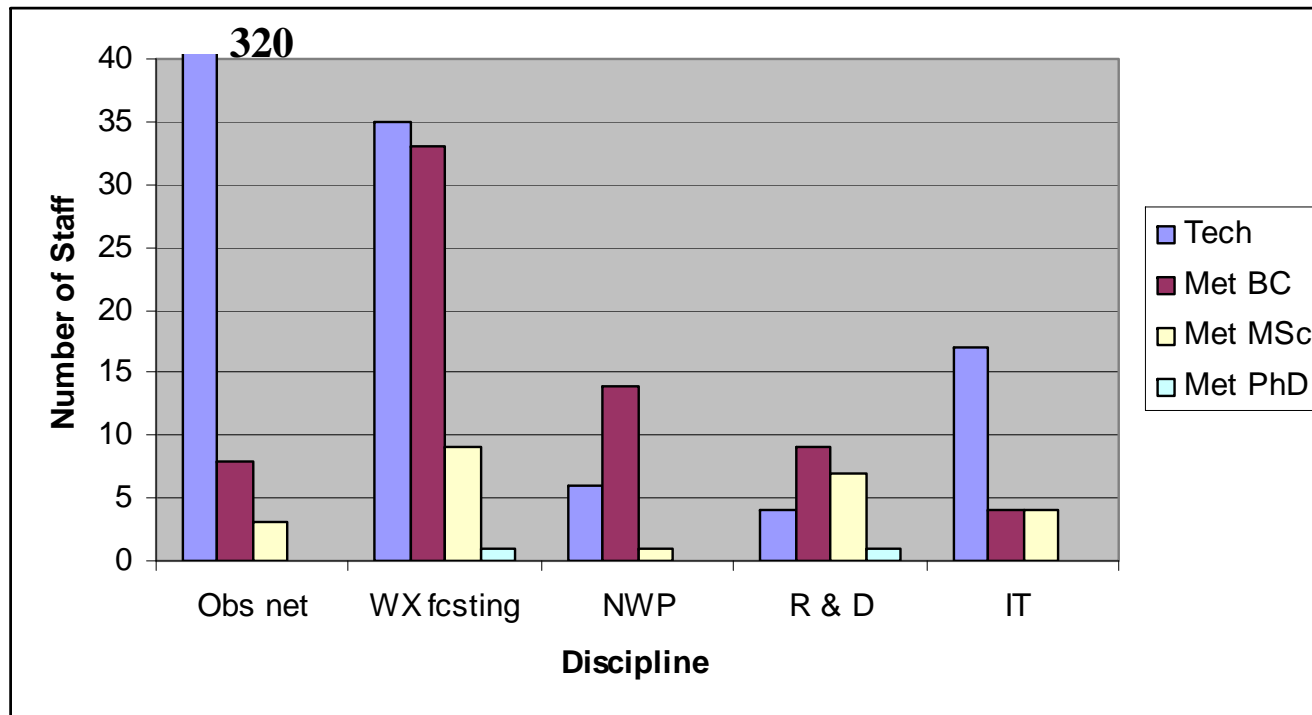
*- More replies pending*

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## Staff Education Levels (RA IV)

- 13 replies (11 Caribbean, 2 Central American)





# Caribbean region

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## **Real-Time Observation and Monitoring**

SYNOP, AWS, Agromet, Raingauge, climate, Radar and satellite images

- Good real-time availability of observations for the majority of responses, however for some countries SYNOP/AWS stations are limited
- *Are data shared within the region (severe weather forecasting)?*

## **Forecasting Capacities**

- Basic “24”/7 forecasting structure and capacities exist, however could be strengthened
- *Advanced methods to extend lead-time, improve reliability, quality assurance? (e.g. EPS based products, SAT objective diagnostics, nowcasting, verification of forecasts and warnings)*
- *Daily Regional Guidance?*

## **Hazard warning criteria**

- Semi-qualitative



# Caribbean region

- 11 replies

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## Public forecasts and warnings

- d-1 to d-5 (daily)
- daily warning programmes

## Education and Training

- Wide ranging responses, E&T exists, however could benefit from more regional resource of expertise, as well as expanded to a multi-hazard approach
- Role of WMO Regional Training Centre?

## Regional Coordination and Collaboration

- Hurricane Committee, CIMH, NOAA and UWI
  - Few responses
  - *Operational forecasting linkages: weather, marine, water, tsunami?*
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# Central America region

- 2 replies

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## **Observation and Monitoring**

- Good coverage and availability of observations
- Radar (Panama, El Salvador)

## **Forecasting Capacities and communications**

- Basic forecasting capacities exist however could be improved

## **Hazard warning criteria**

- Yes

## **Education and Training**

- Benefits from E&T programmes
- Regional expertise as well as expanded to a multi-hazard approach

## **Regional Coordination and Collaboration**

- Hurricane Committee, US NWS
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- Preliminary summary
- More replies to come
- Clarification on replies



*Thank you for participating ...*

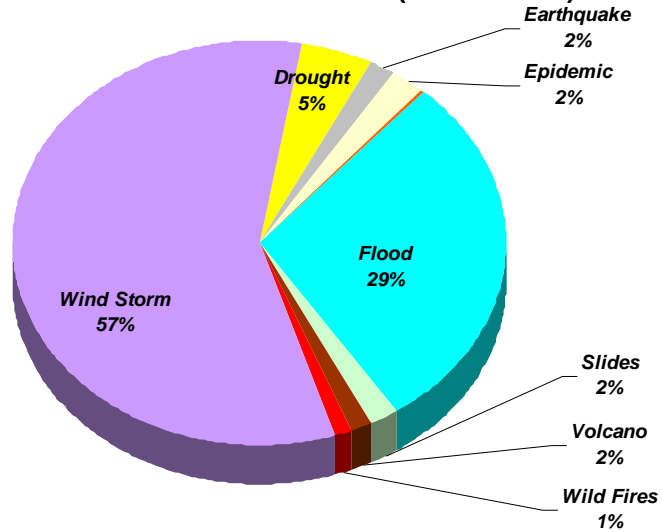




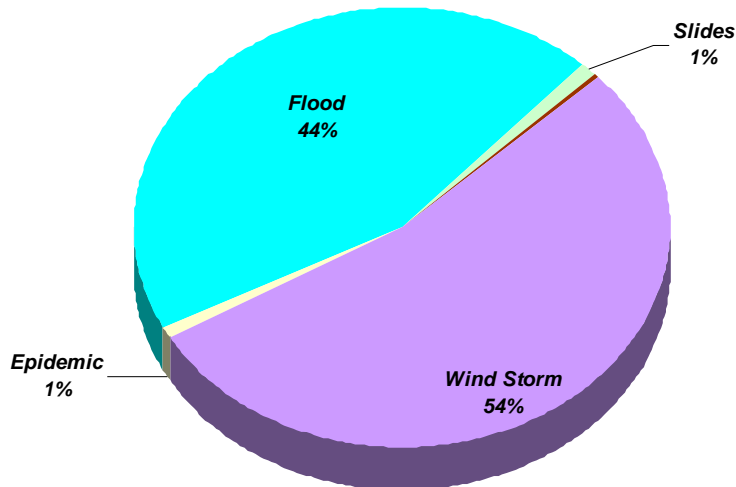


# The Caribbean - 1980-2007

Number of events - 1980-2007 (Caribbeans)

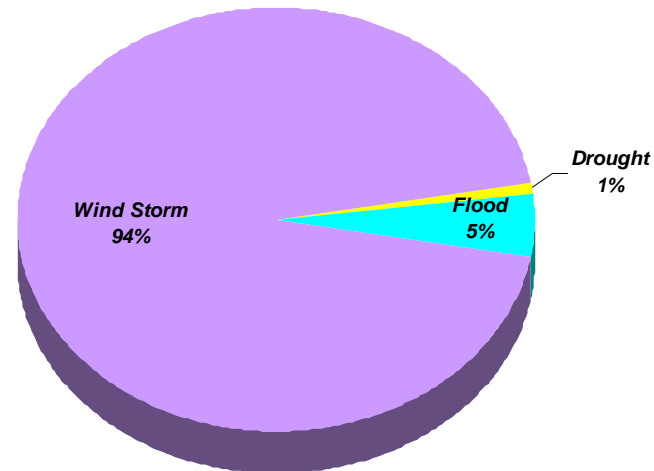


Casualties - 1980-2007 (Caribbeans)



**98 % of events**  
**99 % of casualties**  
**99 % of economic losses**  
**are related to hydro-meteorological hazards and conditions.**

Economic losses - 1980-2007 (Caribbeans)



*Source: EM-DAT:  
The OFDA/CRED  
International Disaster  
Database - Université  
Catholique de  
Louvain - Belgium*

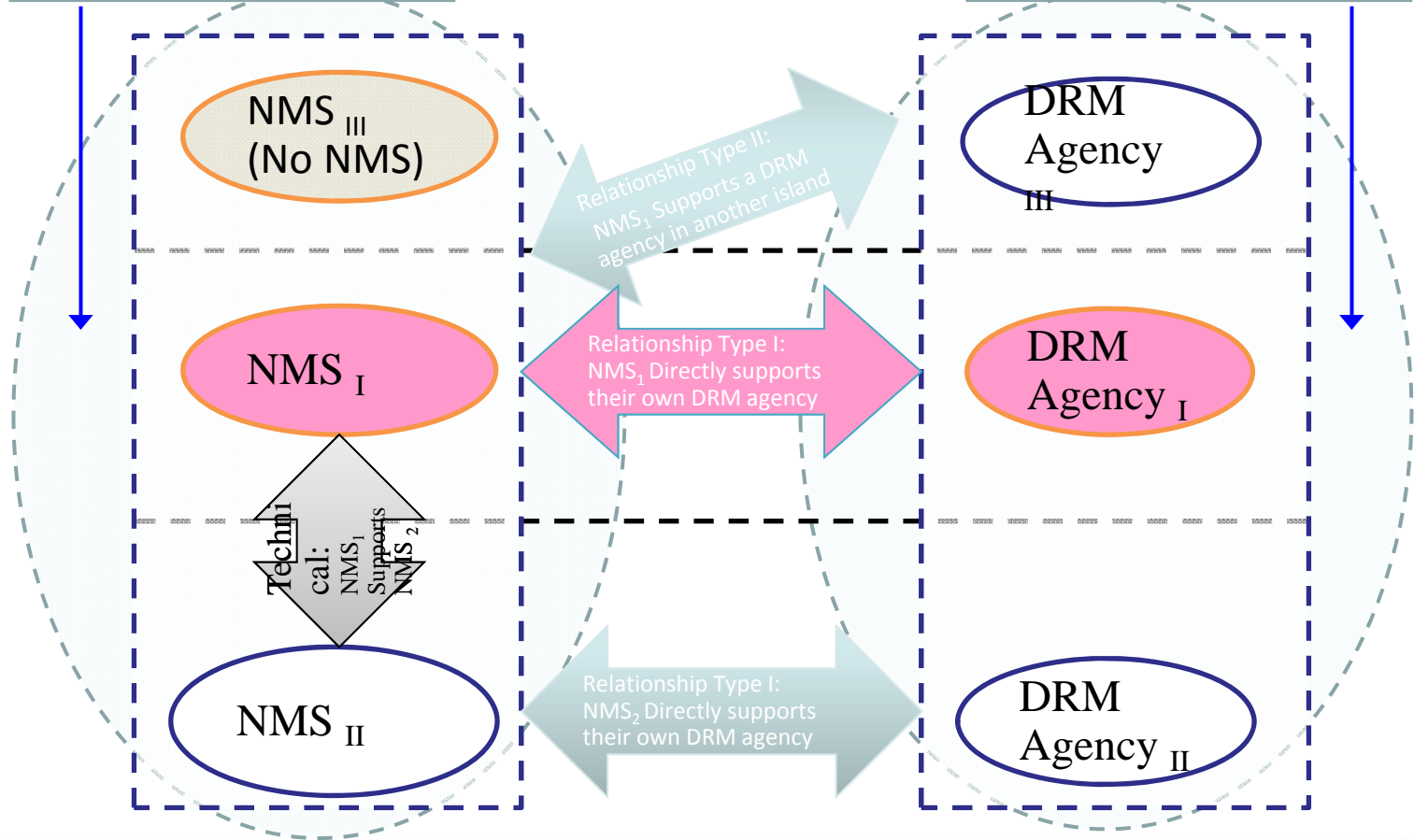


# Different relationships between Disaster Management Agencies and Meteorological Services

Antigua & B.  
Bahamas  
Barbados  
Belize  
Cayman  
Cuba  
Curaçao  
Dominican Rep.  
Guadeloupe  
Guyana  
Haiti  
Jamaica  
Martinique  
St Lucia  
Suriname  
Trinidad & T.

Regional agencies and centers such as RSMC-Miami Hurricane Center, CMO/CIMH, etc. supporting NMSs

Regional agencies and centers such as CDEMA and others supporting DRM agencies



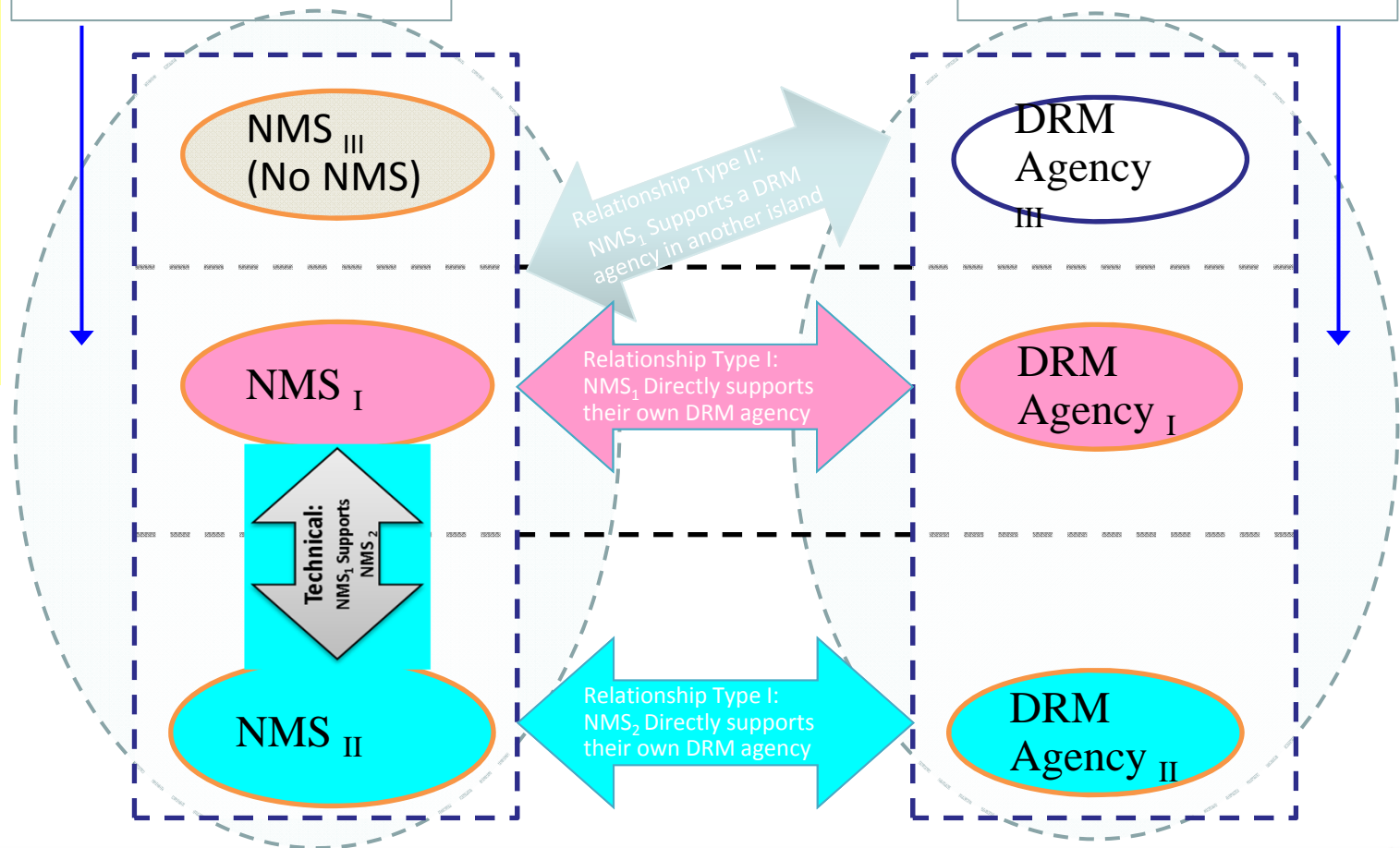


# Different relationships between Disaster Management Agencies and Meteorological Services

Barbados  
Dominica  
St Vincent & G.  
Curaçao  
Aruba  
St Marteen  
Trinidad & T.  
Grenada

Regional agencies and centers such as RSMC-Miami Hurricane Center, CMO/CIMH, etc. supporting NMSs

Regional agencies and centers such as CDEMA and others supporting DRM agencies



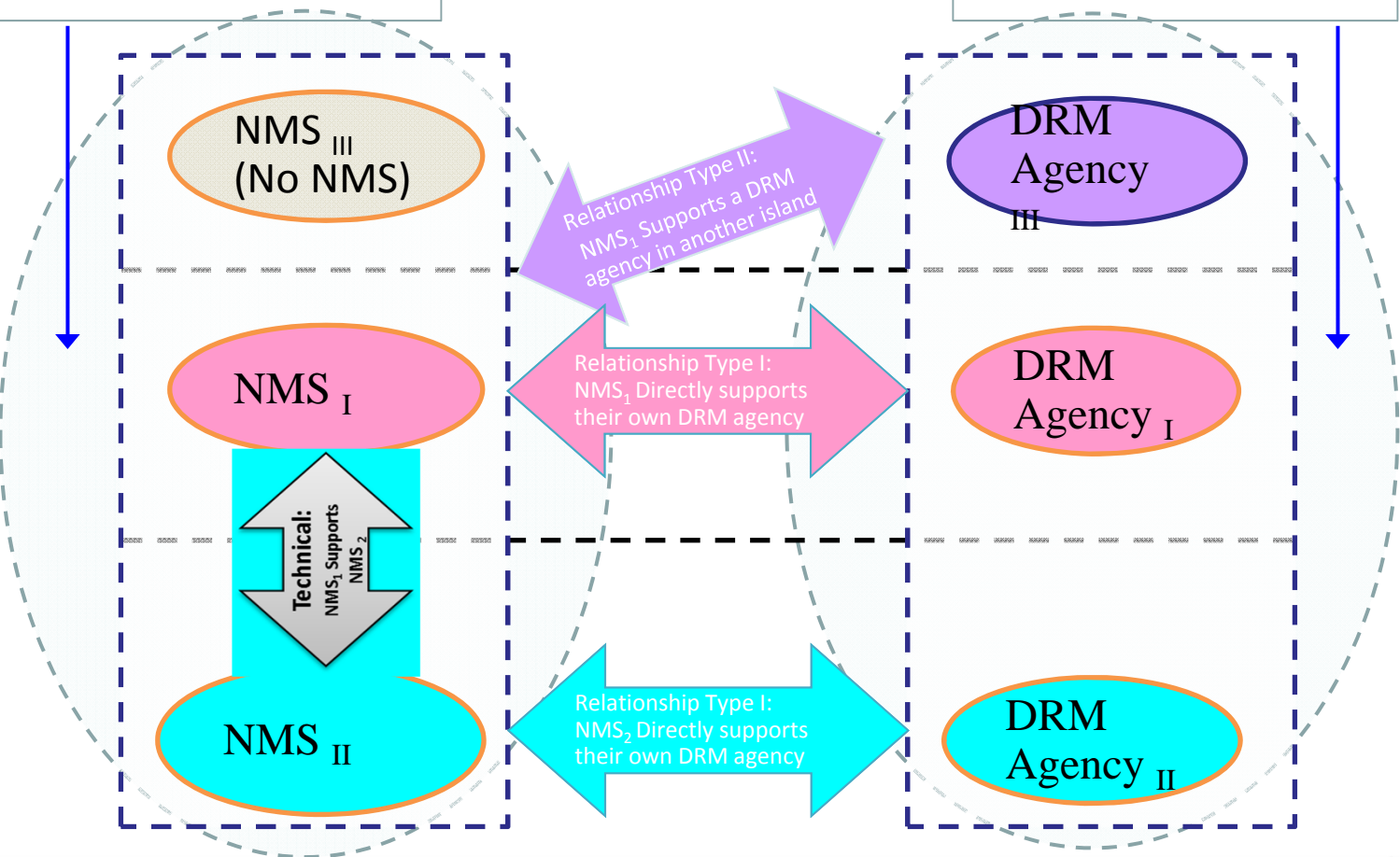


# Different relationships between Disaster Management Agencies and Meteorological Services

Antigua & B.  
Anguilla  
BVI  
Montserrat  
St Kitts & N.  
Bahamas  
Turks and C.  
Curaçao  
Saba/St Eustatius  
Bonaire  
Guadeloupe  
St Martin/St  
Barth

Regional agencies and centers such as RSMC-Miami Hurricane Center, CMO/CIMH, etc. supporting NMSs

Regional agencies and centers such as CDEMA and others supporting DRM agencies





# Survey Participation

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	<b>Meteorology (Section I)</b>	<b>Hydrology (Section II)</b>	<b>Marine (Section III)</b>
Number of responses to each survey section	<b>13</b>	<b>6</b>	<b>10</b>

25 countries / territories received the survey

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