

# World Meteorological Organization

## Meteorological, Hydrological and Climate Services in Support of Disaster Risk Reduction

**Asian Conference on Disaster Reduction 2007**

**25-27 June 2007, Astana, Republic of Kazakhstan**

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### We cannot avoid hazards



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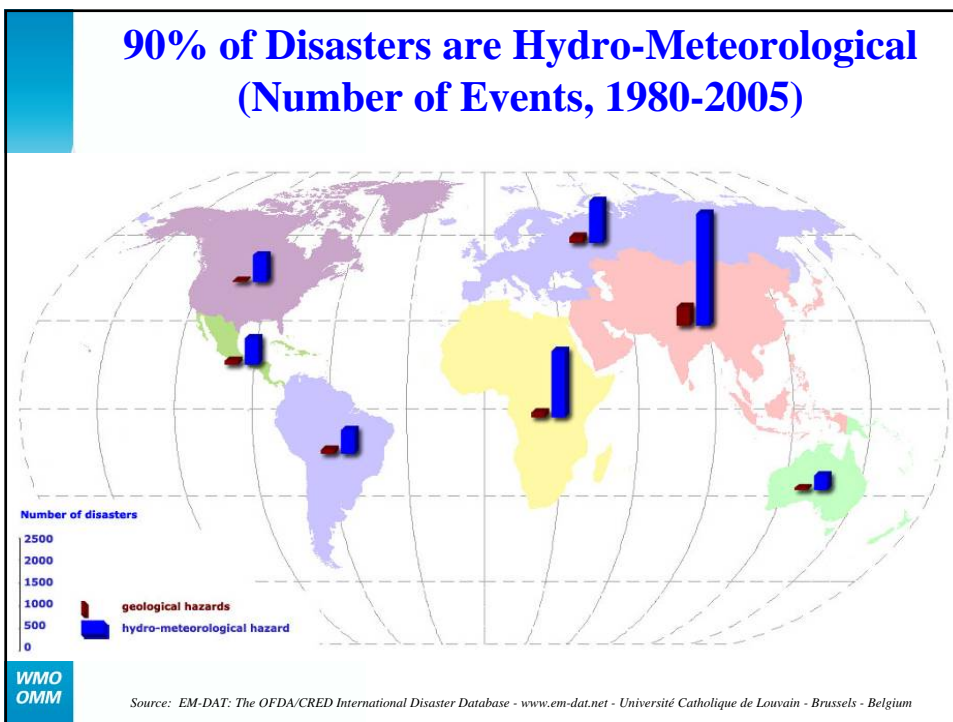
## ...but we can Prevent Them from Becoming Disasters



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Source: World Resources Institute

## 90% of Disasters are Hydro-Meteorological (Number of Events, 1980-2005)



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Source: EM-DAT: The OFDA/CRED International Disaster Database - [www.em-dat.net](http://www.em-dat.net) - Université Catholique de Louvain - Brussels - Belgium

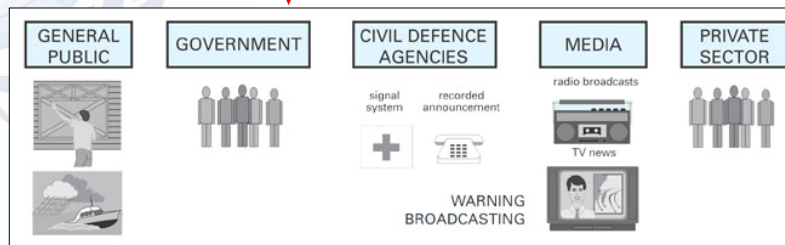
# Supporting National Capacities for Disaster Risk Management

24 hours a day, everyday of the year, in every country

## National Meteorological and Hydrological Services

Products and Services

Needs, requirements, Feedback

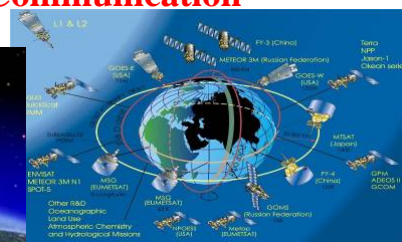


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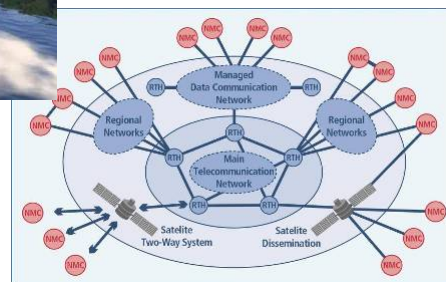
# WMO Coordinated Networks in Support of Disaster Risk Reduction: Observation & Communication



Global Observing System

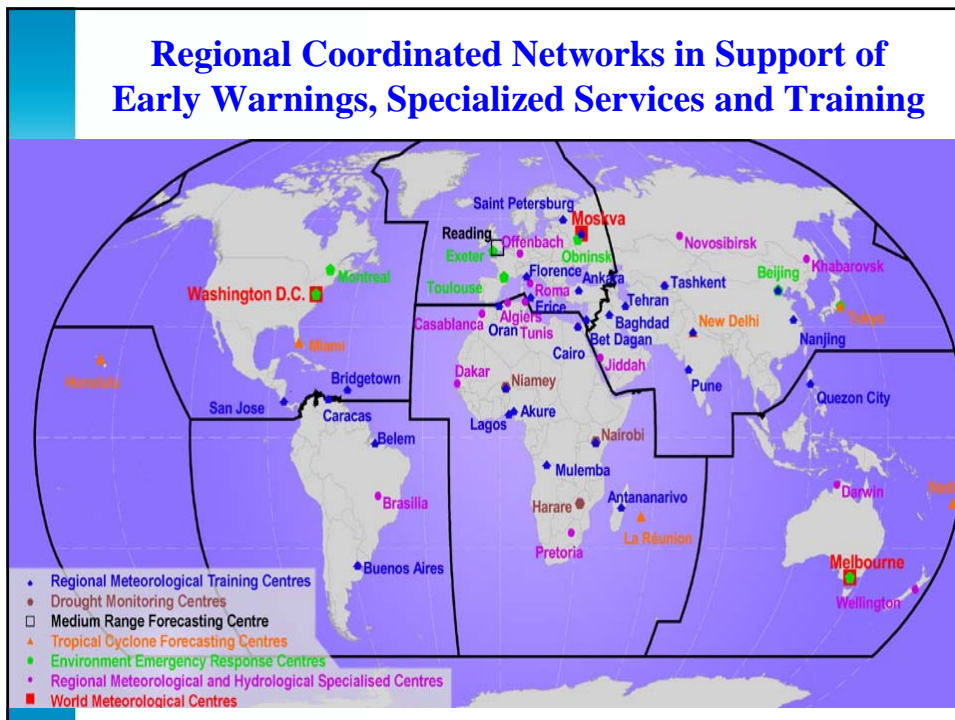
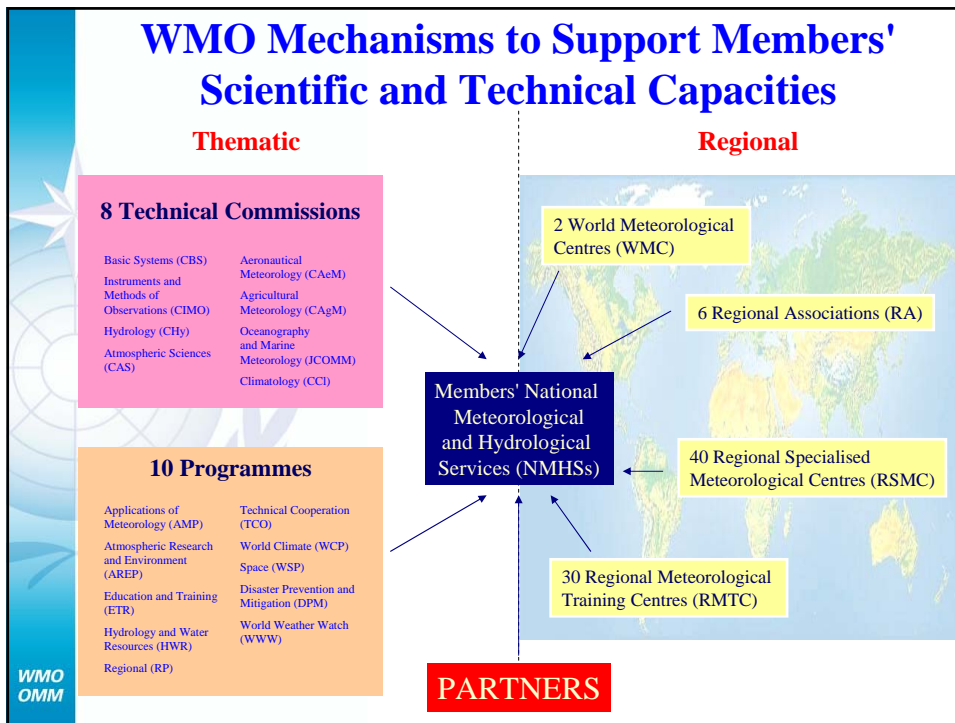


Coordinated Satellite Activities

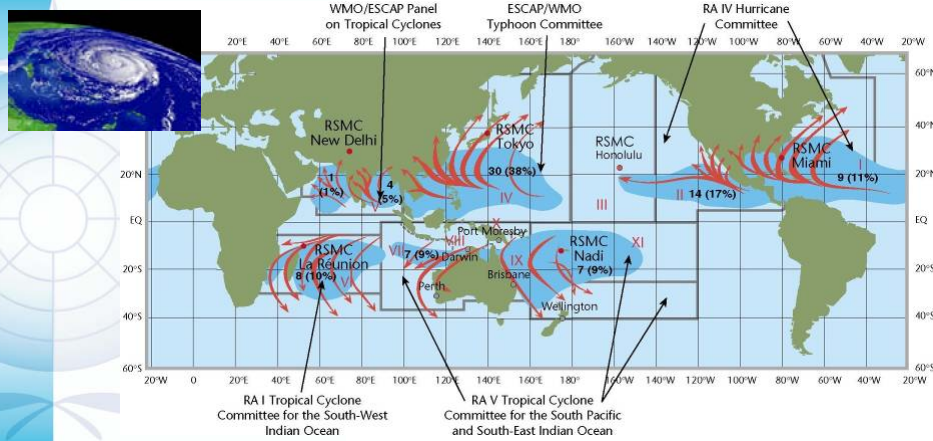


Global Telecommunication System

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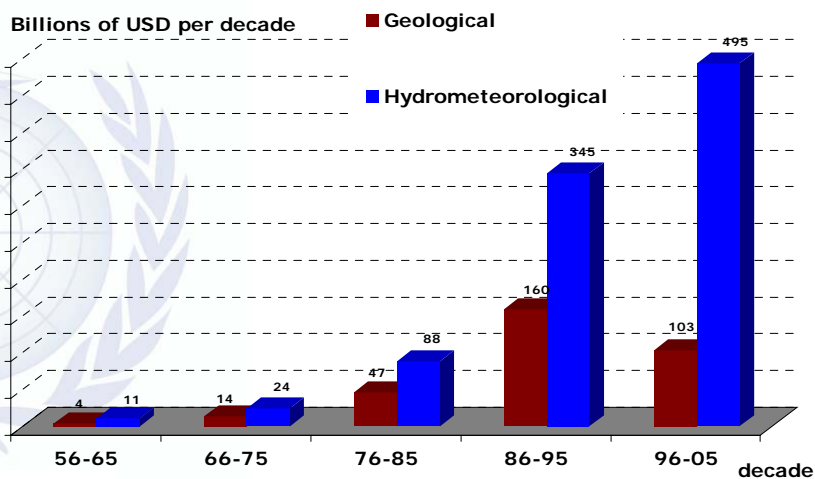
## Example of Regional Cooperation: WMO Global Tropical Cyclone Early Warning System



Regional cooperation (6 Regional Centres) in support of national tropical cyclone early warning systems

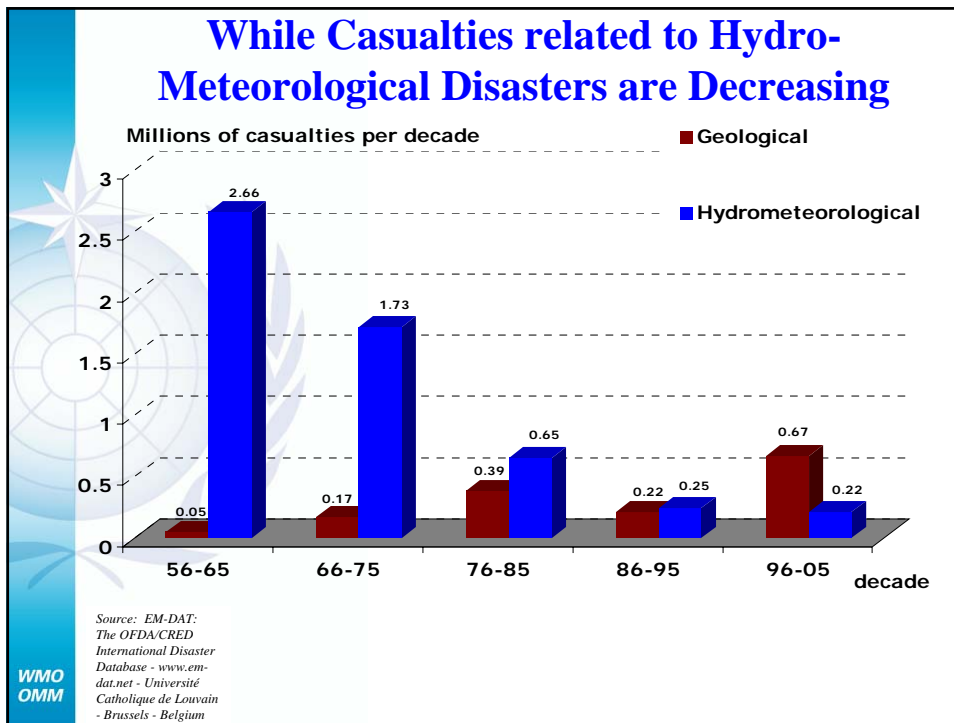
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## Economic Losses are on the Way Up



Source: EM-DAT:  
The OFDA/CRED  
International Disaster  
Database - www.em-  
dat.net - Université  
Catholique de Louvain  
- Brussels - Belgium

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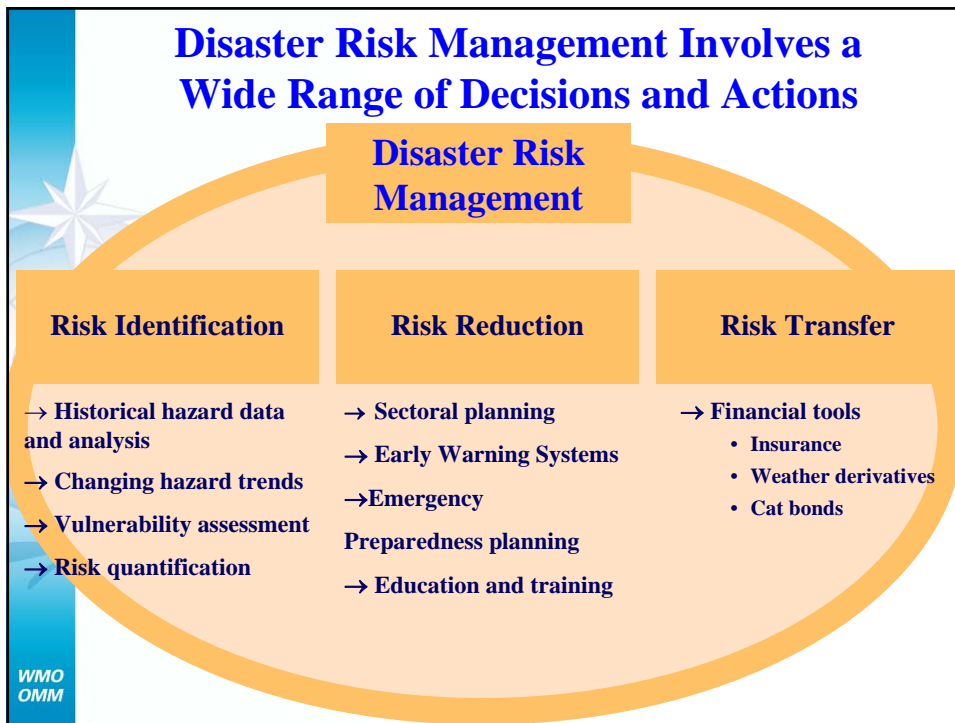


## Return on Investment in Meteorological, Hydrological and Climate Services : **10 to 1**

WMO Secretary-General, Madrid, 19 March 2007

**Building capacities of National Meteorological and Hydrological Services is an investment toward national development.**

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## Shifting Disaster Risk Management from Reaction to Prevention

- Traditionally, disaster risk management approach has been focused on emergency response and recovery measures

World Conference on Disaster Reduction (WCDR)  
168 countries adopted Hyogo Framework for Action (HFA)  
Kobe, Japan, January 2005

- Shifting disaster risk management to a more comprehensive approach, involving
  - prevention
  - preparedness
  - contingency planning
  - emergency response and recovery measures.

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## Strategic Foundation

**Hyogo Framework  
for Action**

2005-2015

(World Conference on  
Disaster Reduction, Jan  
2005)

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**Strategic Plan**

2008-2011

(Top Level Objectives and  
Five Strategic Thrusts)

**Strategic Goals of WMO  
in Disaster Risk Reduction**

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## WMO Strategic Goals for DRR

1. Strengthening and sustainability of **early warning systems**
2. Analyzing and providing **hazard information** for **risk assessment**
3. Delivery of **timely and understandable** warnings and specialized forecasts -- **driven by user requirements**
4. **Integration** of NMHSs' products and services in disaster risk reduction,
5. Strengthening WMO/NMHS **cooperation and partnerships** at national to international level with disaster risk reduction organizations
6. **Public outreach** campaigns

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## Linking DRR Strategic Goals to Action

Implementation through regional and national projects, with following end results:

1. **Modernized** NMHSs systems.
2. Strengthened national **operational** multi-hazard **early warning systems**.
3. Strengthened **hazard analysis** and **risk assessment** capacities.
4. Strengthened **cooperation** of NMHSs with **civil protection** and disaster **risk management agencies**.
5. **Trained** NMHS
6. **Sustained** capacities over time
7. **Enhanced awareness** ministerial and public

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## Examples of DRR Crosscutting Projects initiated in 2007

Project	Country / Region
Multi-Hazard Early Warning	France and Shanghai Mega-City
Severe Weather Forecasting	South East Africa
Global Flash Flood Guidance System	Central America, followed by Africa
Flood Risk Assessment	To be initiated in 6 countries
Drought Monitoring and Risk Assessment	South East Europe & Africa
Public Education and Outreach	Global

Other projects are also being considered for 2008-2011

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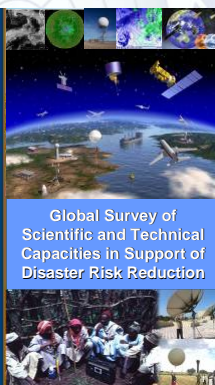
## Systematic Assessment of Capacities, Requirements and Priorities

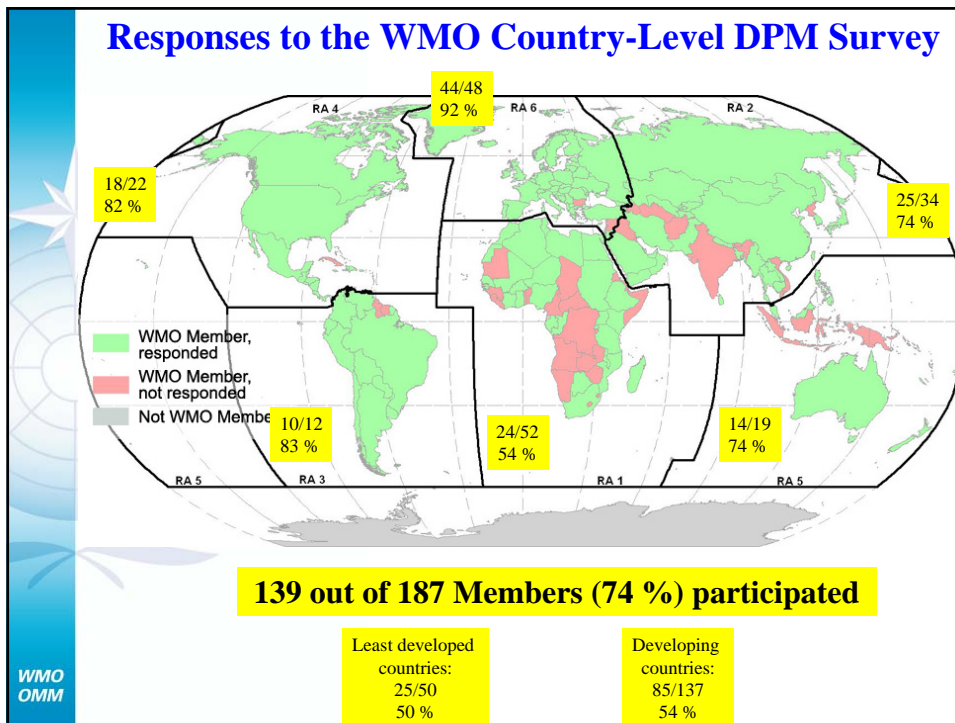
### By country groupings:

1. Hazards affecting the countries
2. Role of National Meteorological Services for disaster risk reduction
3. Capacities to deliver products and services in support of disaster risk reduction
4. Challenges, requirements and opportunities

### At regional level:

1. Regional strategy for disaster risk reduction
2. Opportunities for partnerships



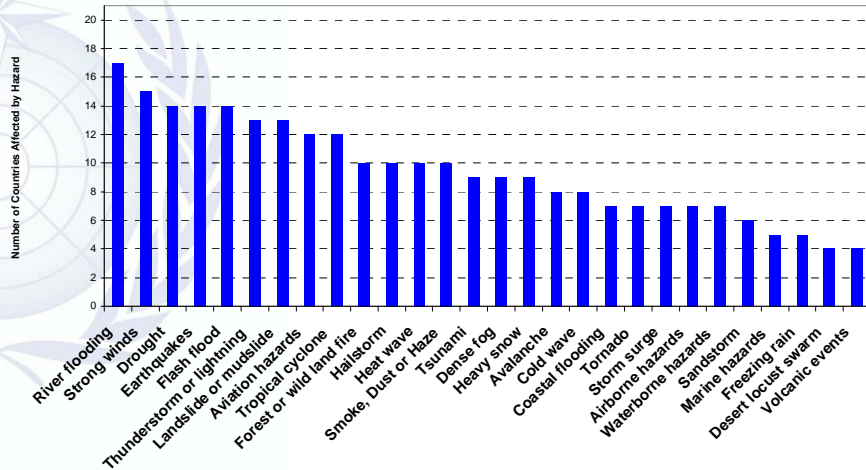


## Analysis for ADRC Member Countries

### 21/25 Countries Participated

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## Number of responding countries who identified themselves as being affected by specific hazards



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## National Context for Disaster Risk Reduction: Legislation and Governance

Disaster reduction activities are coordinated at the national level:

**18** / 21

Disaster reduction activities are coordinated under the direct line authority of the head of

government: **17** / 21

Legislation governs the way that disaster risk reduction is organized in the countries:

**17** / 21

**Legal and governance mechanisms are available but are limiting implementation of DRR initiatives in 10 of 21 countries**

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## National Context for Disaster Risk Reduction: National Structures/Mechanisms for Disaster Risk Reduction

A national committee for disaster risk reduction involves multiple ministries and agencies:

16 / 21

NMHS is a member of this national committee:

16 / 21

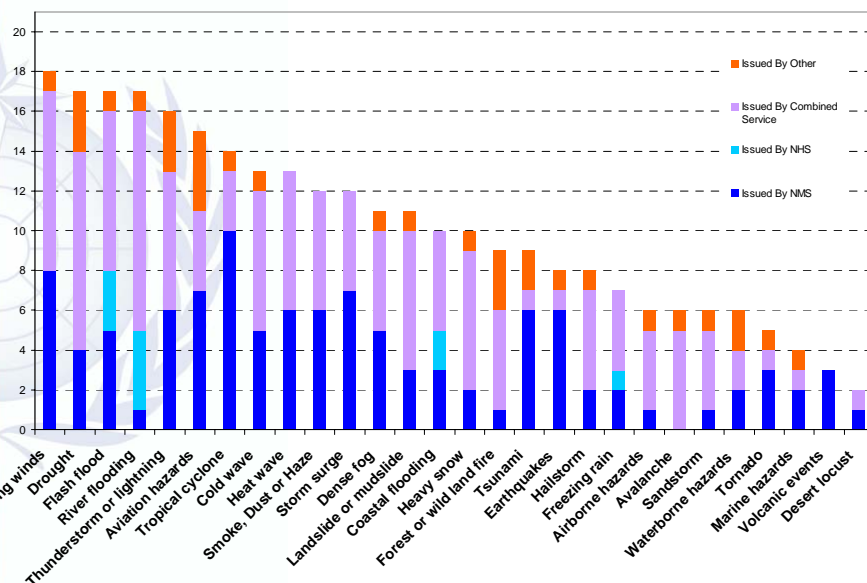
Lack of clear legislation or policies regarding the role of the NMHS in DRR:

10 / 21

**NMHSs participate in national coordination mechanisms when available; The definition of stakeholders' roles and responsibilities with regards to DRR needs to be improved in half of participating countries**

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## National Capacities for Issuance of Warnings



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## Number of Countries Maintaining Standardized Information about Hazards and their Socio-Economic Impacts

A national agency is responsible for providing official information on the impacts of disasters in the country: **18** / 21

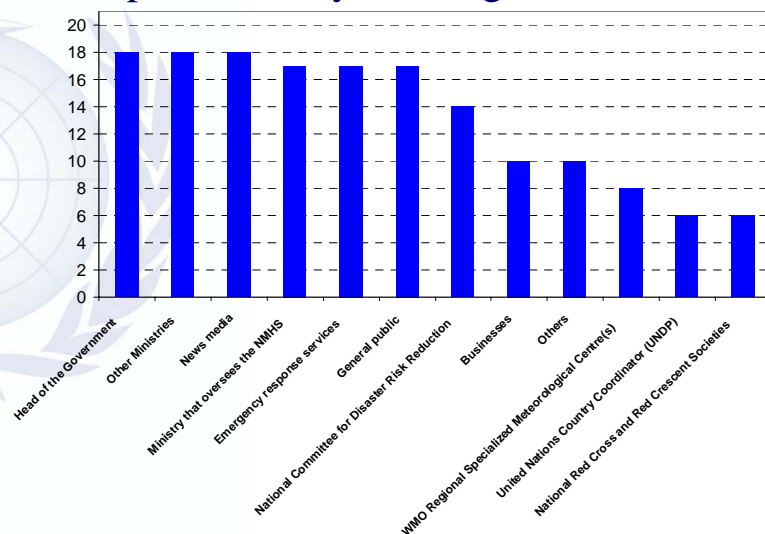
National Meteorological and Hydrological Services have access to official, reliable, information on impacts: **17** / 21

**90% of participating ADRC Member countries have information about impacts of disasters available, compared to 67% globally**

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## National Context for Disaster Risk Reduction: Contributions of NMHS to National Disaster Risk Reduction

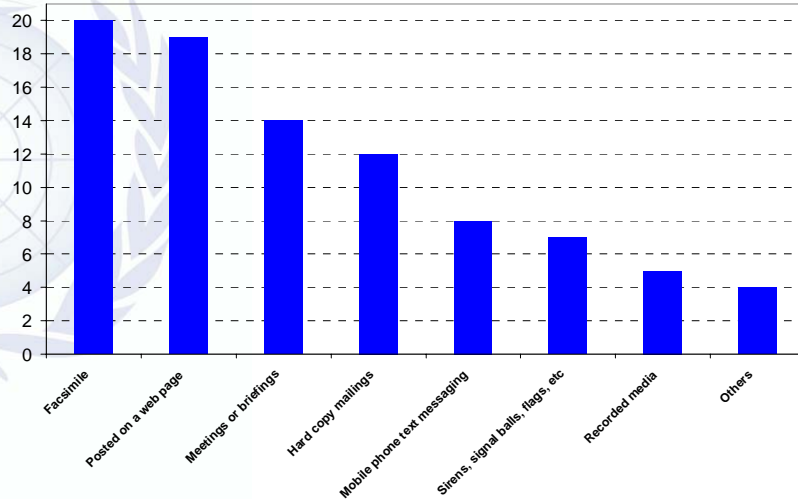
NMHS provide early warning information to:



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## National Context for Disaster Risk Reduction: Contributions of NMHS to National Disaster Risk Reduction

Dissemination methods for warnings:



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## National Context for Disaster Risk Reduction: Contributions of NMHS to National Disaster Risk Reduction

24 hours a day, every day  
of the year forecasting  
service:

**19** / 21

24 hours a day, every day  
of the year dedicated  
warning service:

**18** / 21

**NMHSs provide  
critical  
contributions to  
DRR.**

**NMHSs are  
operational 24/7  
in almost every  
country.**

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## National Context for Disaster Risk Reduction:

### Limiting Factors for Contributions of NMHSs to DRR

Lack of resources and infrastructure to deliver critical products and services for disaster risk reduction:

**13** / 21

Lack of linkages between the NMHS and other organizations (e.g. emergency response):

**6** / 21

Lack of clear legislation or policies regarding the role of the NMHS:

**10** / 21

**Main strengths:**  
**Linkages between NMHSs and other organizations**

**Major limiting factor:**  
**Resources**

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## Common Challenges

### Governance:

- Demonstrating socio-economic benefits of prevention measures

### Organizational coordination:

- Partnerships, definition of roles and responsibilities of every stakeholders

### Technical:

- Telecommunications, internet access, computer hardware and software
- Observing networks development and sustainability
- Hazard data: data management, methodologies for data rescue, quality assurance, statistical analysis of hazard characteristics and mapping
- Specialised forecasting services in support of risk reduction

### Education and Training:

- Technical training and capacity development
- Joint multi-disciplinary training with multiple agencies
- Public outreach programmes

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## *Thank You*

**For more information please contact:**

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<http://www.wmo.int/disasters>

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