

# The European Commission's science and knowledge service

Joint Research Centre

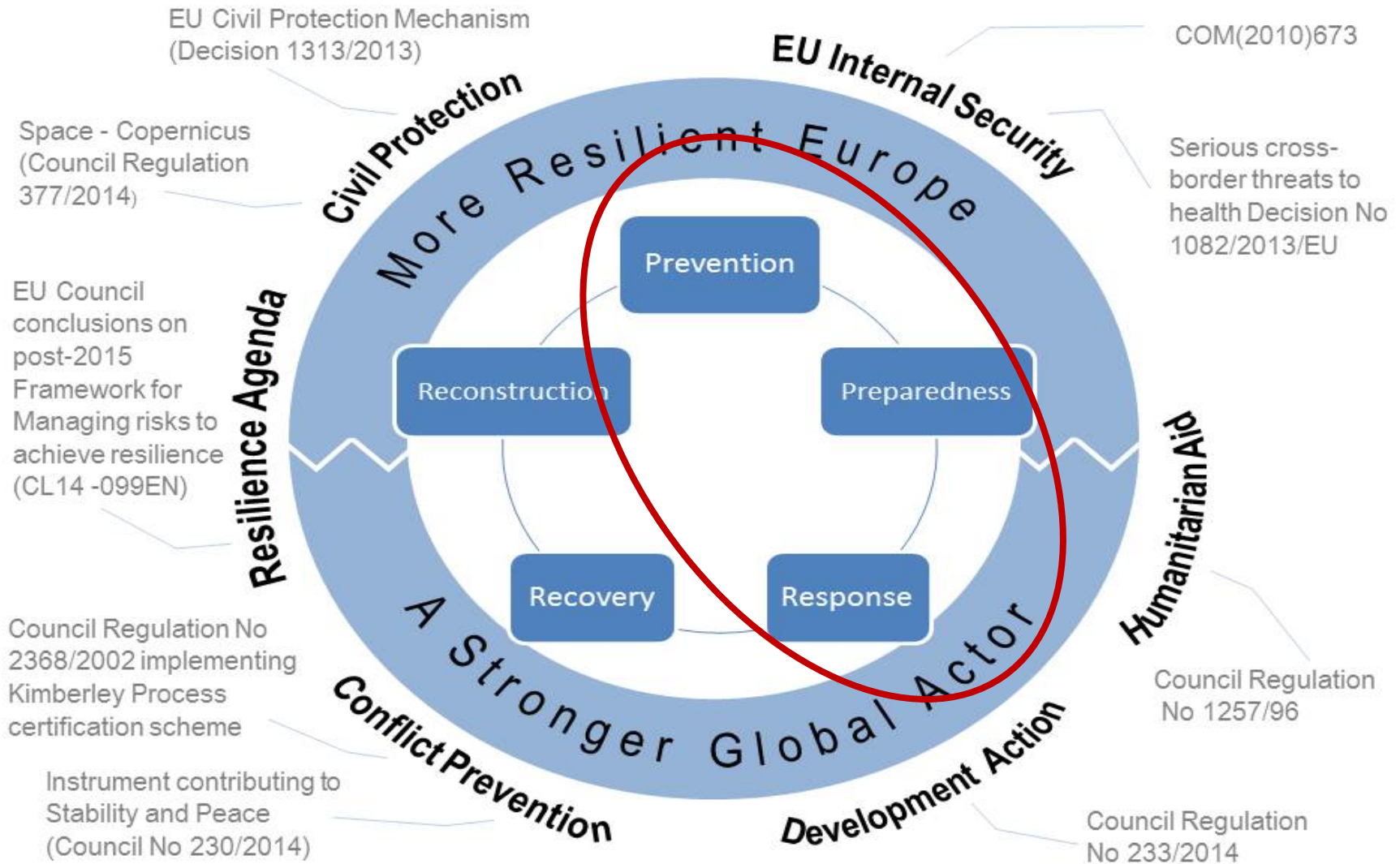
## *How to use science for effective decision- making in crises*

Vladimír Šucha,  
Director-General

Brussels, 29<sup>th</sup>-30<sup>th</sup> September 2016



# Framework



# Prevention, preparedness, response

## Sound Scientific Knowledge

- Process
- Timeliness
- Technology, instruments
- Collaboration & Partnerships
- Feeding the knowledge back into the cycle

# Crisis

An aerial photograph showing a town that has been almost completely destroyed. The buildings are mostly reduced to rubble, with only a few remaining walls and roofs visible. The ground is covered in debris and dust. The overall scene is one of devastation and crisis.

Amatrice, Italy, 24 Aug 2016

- 6.0-magnitude
- 100km north-east of Rome
- Nearly 300 people died, hundreds injured

# Thematic expertise

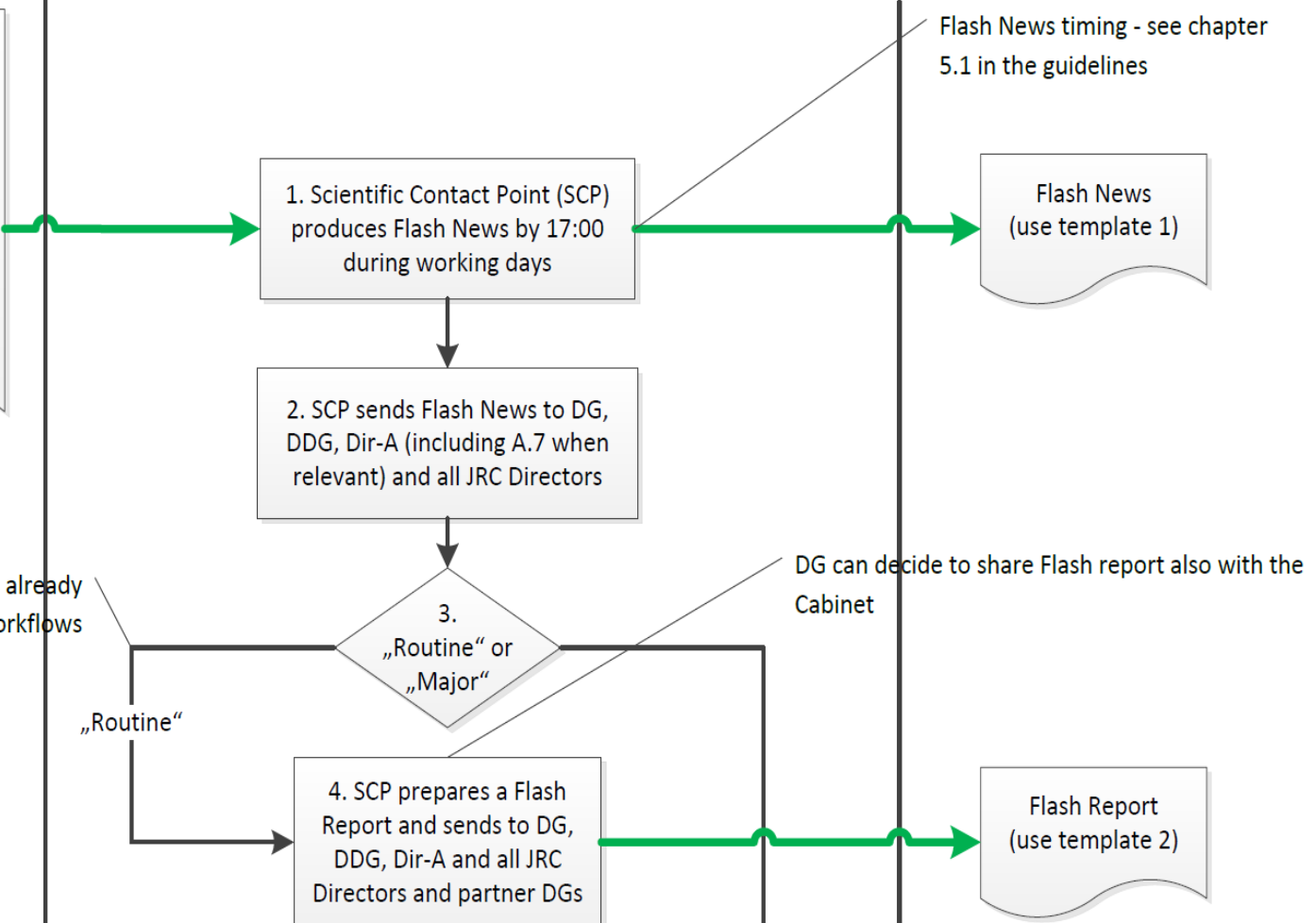
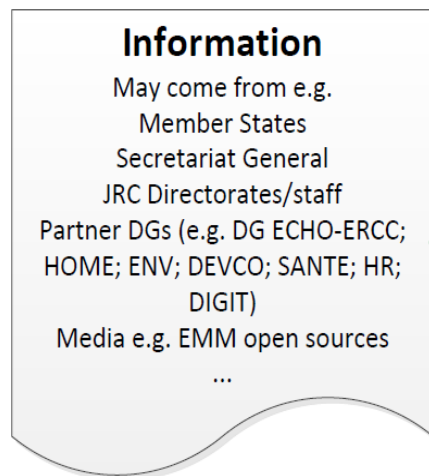
- **PUBLIC HEALTH**
- **NATURAL HAZARDS**
- **ENVIRONMENTAL DISASTERS**
- **TECHNOLOGICAL HAZARDS**
- **MARITIME ACCIDENTS**
- **CYBER INCIDENTS**
- **CHEMICAL, BIOLOGICAL, NUCLEAR (CBRNE)**
- **FINANCIAL SYSTEMS AND ECONOMY**

# Process

## Input

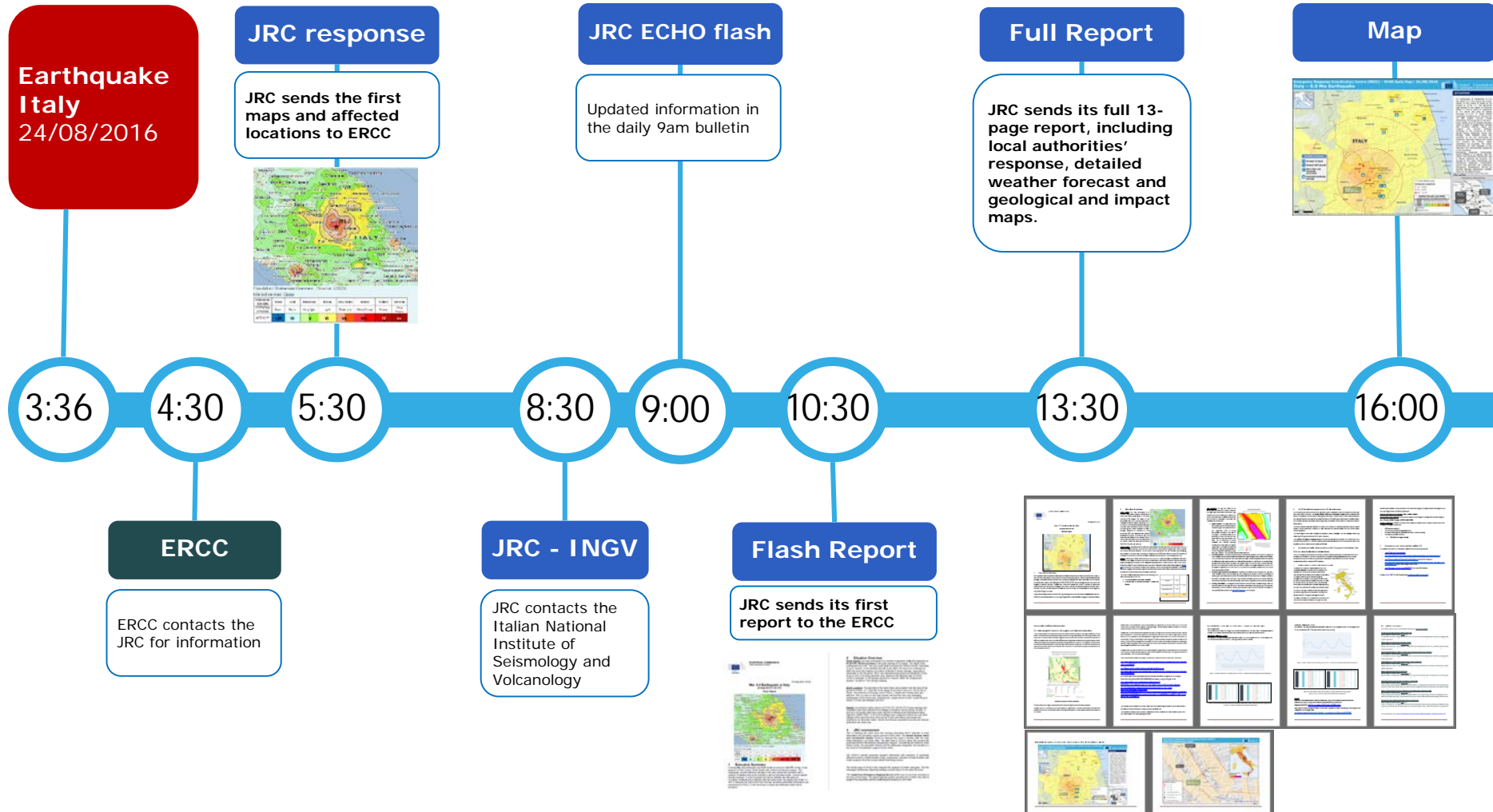
## Process

## Output



# Speed

## Amatrice Earthquake Italy 24 Aug 2016



# Speed

## Tsunami Wave Forecast Japan 11 Mar 2011

### Tsunami

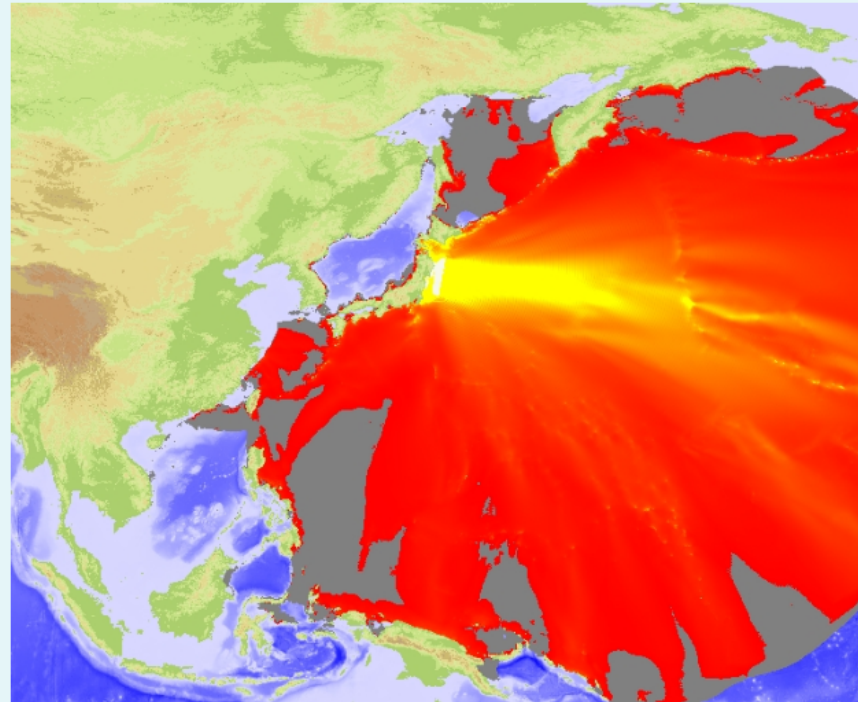
#### Affected locations

Locations affected by Tsunami wave (15 of 7044)

Date	Name	Country	Tsunami wave height (m)
11 Mar 2011 05:52:00	Kesaiso	Japan	9.9m
11 Mar 2011 05:54:00	Motoyoshi	Japan	9.9m
11 Mar 2011 05:54:00	Koizumi	Japan	9.9m
11 Mar 2011 06:02:00	Shimo-Kitabo	Japan	9.8m
11 Mar 2011 06:02:00	Kami-Asamigawa	Japan	9.8m
11 Mar 2011 06:04:00	Naraha	Japan	9.8m
11 Mar 2011 06:04:00	Kami-Shigeoka	Japan	9.8m
11 Mar 2011 06:04:00	Ide	Japan	9.8m
11 Mar 2011 06:02:00	Arayashik	Japan	9.7m
11 Mar 2011 06:02:00	Yotsukura	Japan	9.7m
11 Mar 2011 06:04:00	Sumiyoshi	Japan	9.7m
11 Mar 2011 06:04:00	Onahama	Japan	9.7m
11 Mar 2011 06:04:00	Tomioka	Japan	9.7m
11 Mar 2011 06:06:00	Obama	Japan	9.7m

See [full locations list \(RSS\)](#)

#### Initial conditions (+)



Tsunami maximum wave height (Source: JRC)

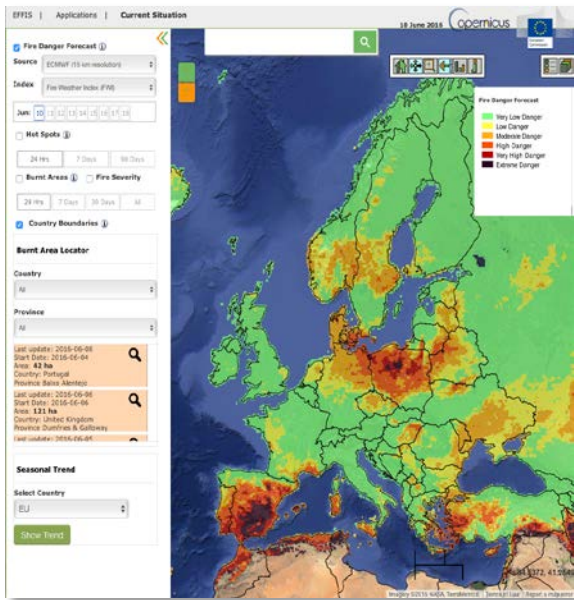
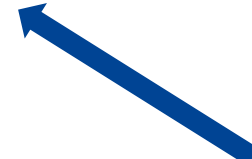
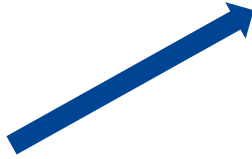
See [animation](#)

## Alert to 22.000 users within 10 min



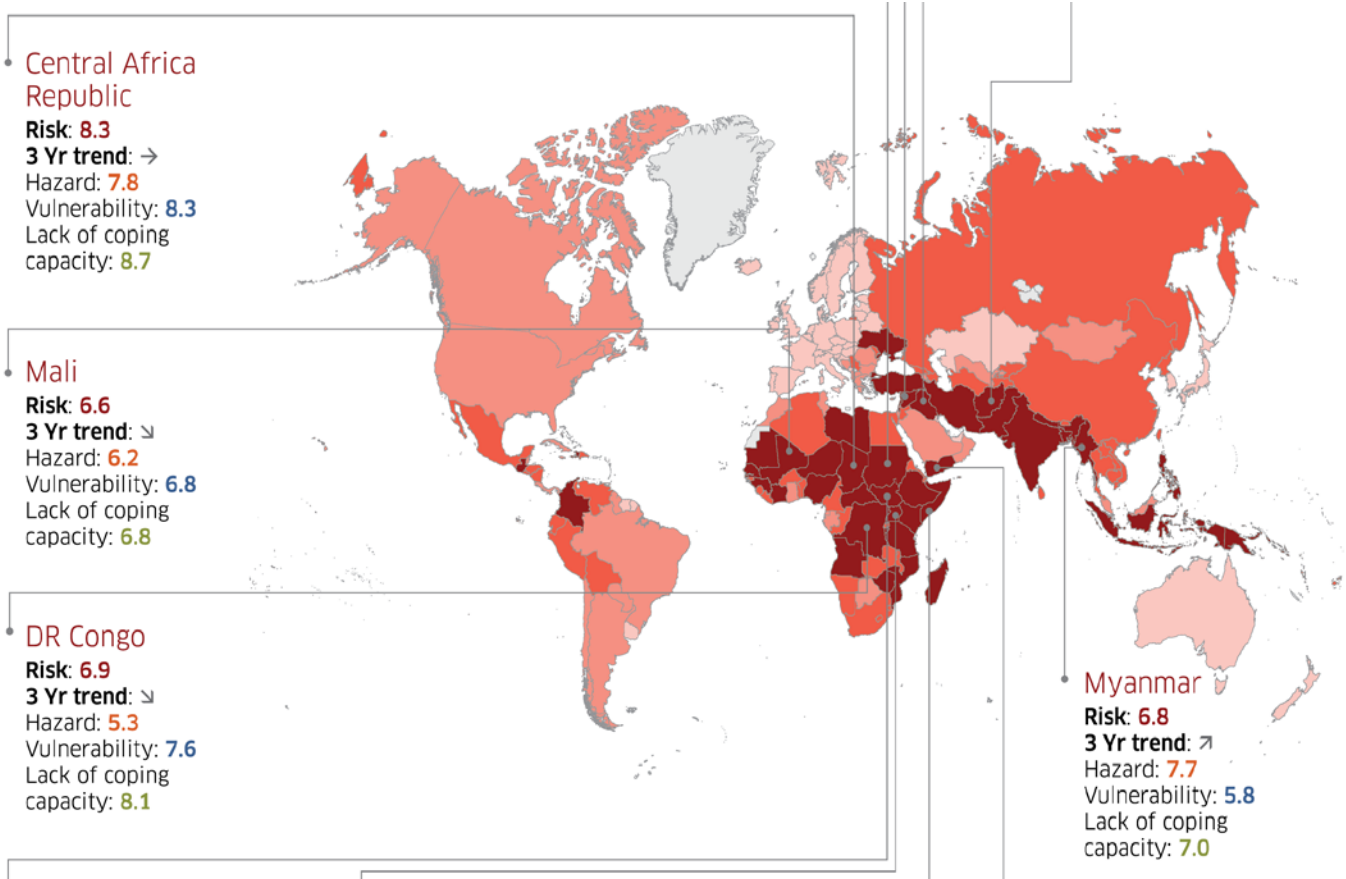
# Technology

## Emergency Response Coordination Centre



Emergency response for floods, forest fires, earthquakes





**Central Africa Republic**

**Risk: 8.3**  
**3 Yr trend:** →  
 Hazard: **7.8**  
 Vulnerability: **8.3**  
 Lack of coping capacity: **8.7**

**Mali**

**Risk: 6.6**  
**3 Yr trend:** ↘  
 Hazard: **6.2**  
 Vulnerability: **6.8**  
 Lack of coping capacity: **6.8**

**DR Congo**

**Risk: 6.9**  
**3 Yr trend:** ↘  
 Hazard: **5.3**  
 Vulnerability: **7.6**  
 Lack of coping capacity: **8.1**

**South Sudan**

**Risk: 7.9**  
**3 Yr trend:** ↗  
 Hazard: **6.8**  
 Vulnerability: **8.2**  
 Lack of coping capacity: **8.9**

**Uganda**

**Risk: 6.5**  
**3 Yr trend:** →  
 Hazard: **6.1**  
 Vulnerability: **6.2**  
 Lack of coping capacity: **7.1**

**Somalia**

**Risk: 8.7**  
**3 Yr trend:** ↘  
 Hazard: **8.8**  
 Vulnerability: **8.3**  
 Lack of coping capacity: **9.1**

**Myanmar**

**Risk: 6.8**  
**3 Yr trend:** ↗  
 Hazard: **7.7**  
 Vulnerability: **5.8**  
 Lack of coping capacity: **7.0**

**Yemen**

**Risk: 7.5**  
**3 Yr trend:** ↗  
 Hazard: **8.1**  
 Vulnerability: **6.6**  
 Lack of coping capacity: **7.9**

# INFORM

INDEX FOR RISK MANAGEMENT



↗ Increasing risk → Stable ↘ Decreasing risk

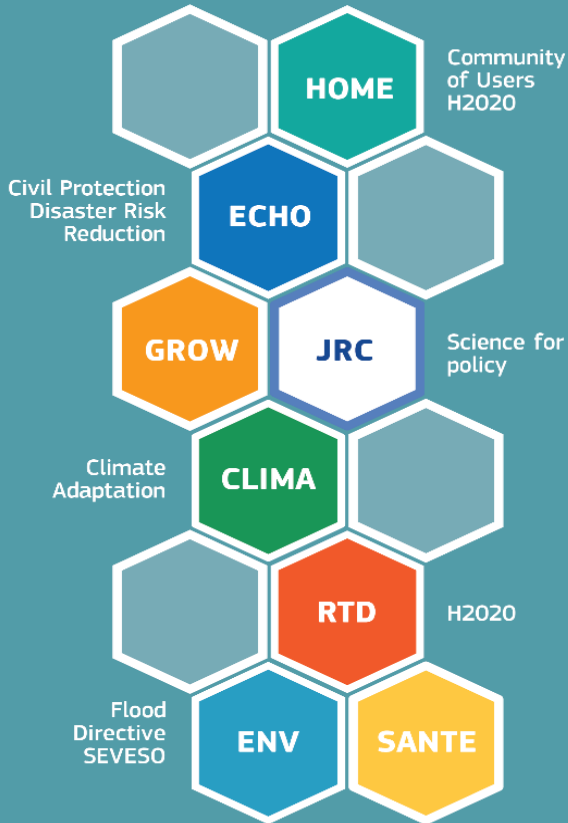


# Well managed knowledge



## DRMKC Large scientific community for DRM

### EC Directorates



### DRMKC



#### PARTNERSHIP

- 1 Hazard Scientific Partnerships
- 2 Science Policy Interface



#### KNOWLEDGE

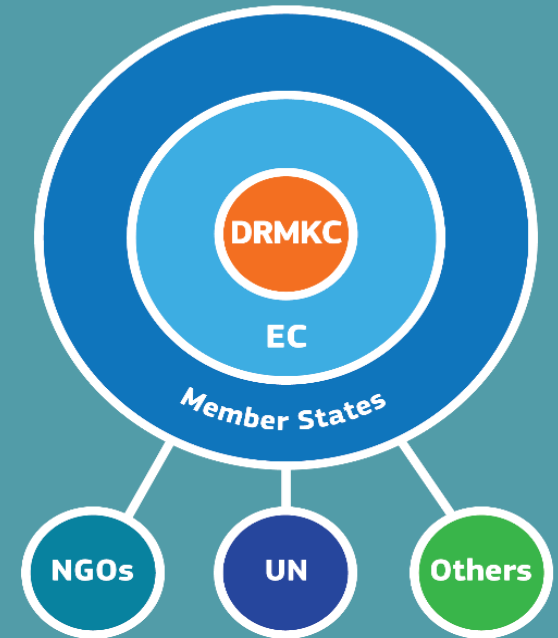
- 3 Pooling of Research Results
- 4 Identification of research needs and gaps



#### INNOVATION

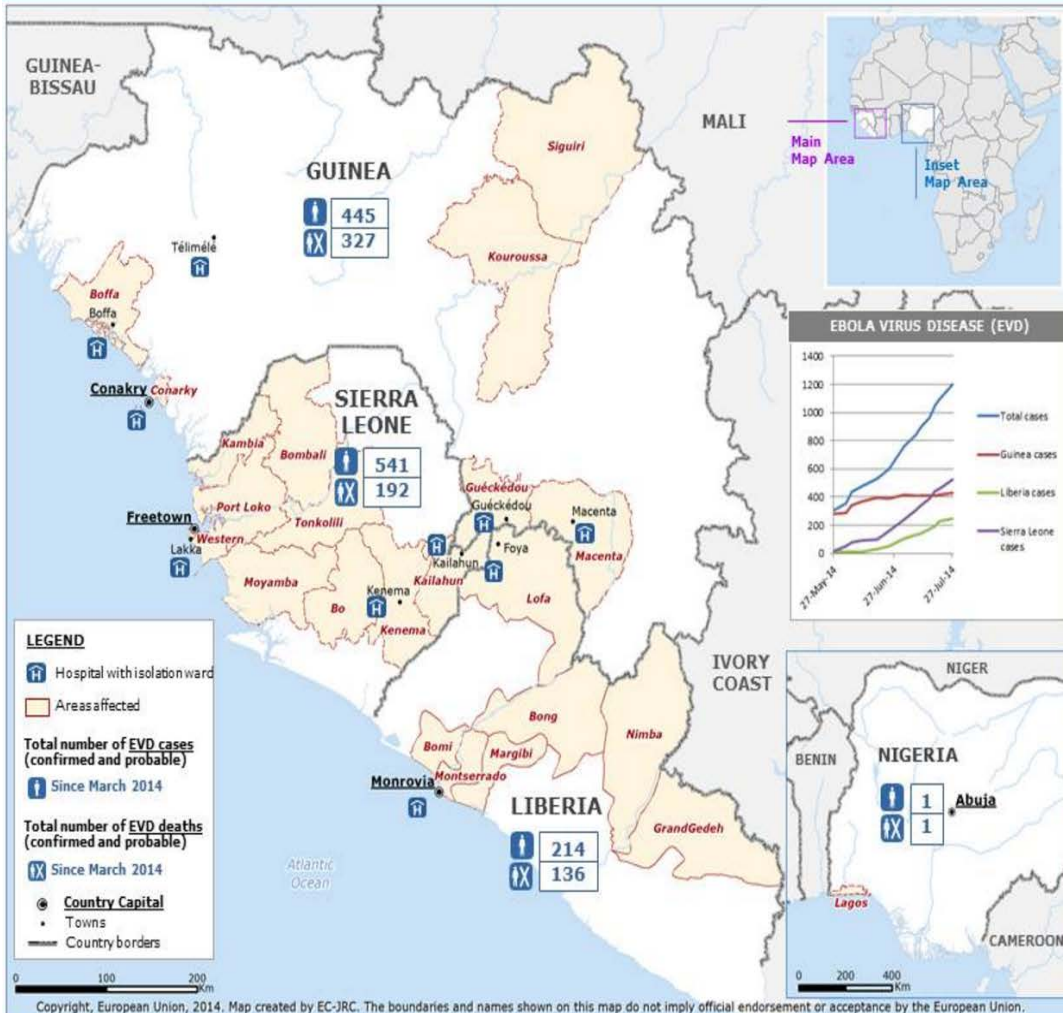
- 5 Networks of Laboratories
- 6 Support System

### Serving



# Collaboration / partners

29 July 2014: West Africa - Ebola Virus Disease (EVD) Outbreak



## SITUATION

- The Ebola Virus Disease (EVD) outbreak in West Africa has been declared a Grade 3 Emergency under WHO's Emergency Response Framework. The number of Ebola cases in Sierra Leone, Liberia and Guinea passes the 1 000 mark with over 650 deaths; in the last week alone at least four doctors (two US citizens, one Sierra Leonean and one Liberian who died) and eight other health staff have been infected by the Ebola virus.

- Liberian president Johnson Sirleaf has ordered the closure of all but a few key border crossings into and out of Liberia. These crossings together with the International Airport will be intensifying the screening of travellers.

- Following the death of a confirmed Ebola case in Lagos, who had arrived from Liberia, Nigerian authorities believe that they have all the potential contacts under observation. All entry points are now under close surveillance and the regional airline Arik Air, based out of Nigeria, has stopped all services to Liberia and Sierra Leone.

Sources: ECHO WHO

## EVD OUTBREAK STATISTICS (ALL FOUR COUNTRIES)

Total no. of confirmed and probable cases	1 201
Total no. of EVD deaths (confirmed and probable cases)	657

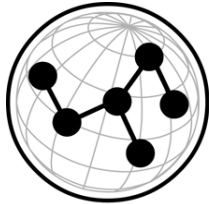
*Global Health: Early Alerting and Reporting (EAR) Platform*

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# Collaboration / partners

**EURDEP on-line  
Environmental Radiation Monitoring**  
(collaboration with IAEA IRMIS)



CBRN  
**Centres  
of Excellence**  
*An initiative of the European Union*



**European Community  
Urgent Radiological  
Information Exchange  
(ECURIE) system**

# Policy Response

**Sept 15, 2008:** Lehman Brothers Bankruptcy affects, in following weeks, many European banks. Commission reacts.

13.3.2009

EN

Official Journal of the European Union

L 68/3

## DIRECTIVES

DIRECTIVE 2009/14/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 11 March 2009

amending Directive 94/19/EC on deposit-guarantee schemes as regards the coverage level and the payout delay

(Text with EEA relevance)

**The increased level of protection of 100k€  
now safeguards 90% of EU deposits**

# Stay in touch



EU Science Hub: [ec.europa.eu/jrc](https://ec.europa.eu/jrc)



Twitter: [@EU\\_ScienceHub](https://twitter.com/EU_ScienceHub)



Facebook: [EU Science Hub - Joint Research Centre](https://www.facebook.com/EU_Science_Hub_-_Joint_Research_Centre)



LinkedIn: [Joint Research Centre](https://www.linkedin.com/company/joint-research-centre)



YouTube: [EU Science Hub](https://www.youtube.com/EU_Science_Hub)