

# Hazard Matrix of Agencies Actions v.s. Time Staged Warning Levels

Use **Timeline** as a tool to reduce disaster risks

Concept: Systematically reducing disaster risks with coordinated actions among agencies by  
Assuming that disasters would occur

# Timeline

- **When:** X hours before the disaster strikes
- **Activity:** what to do
- **Emergency Support Function:** by whom  
describing roles of each agency

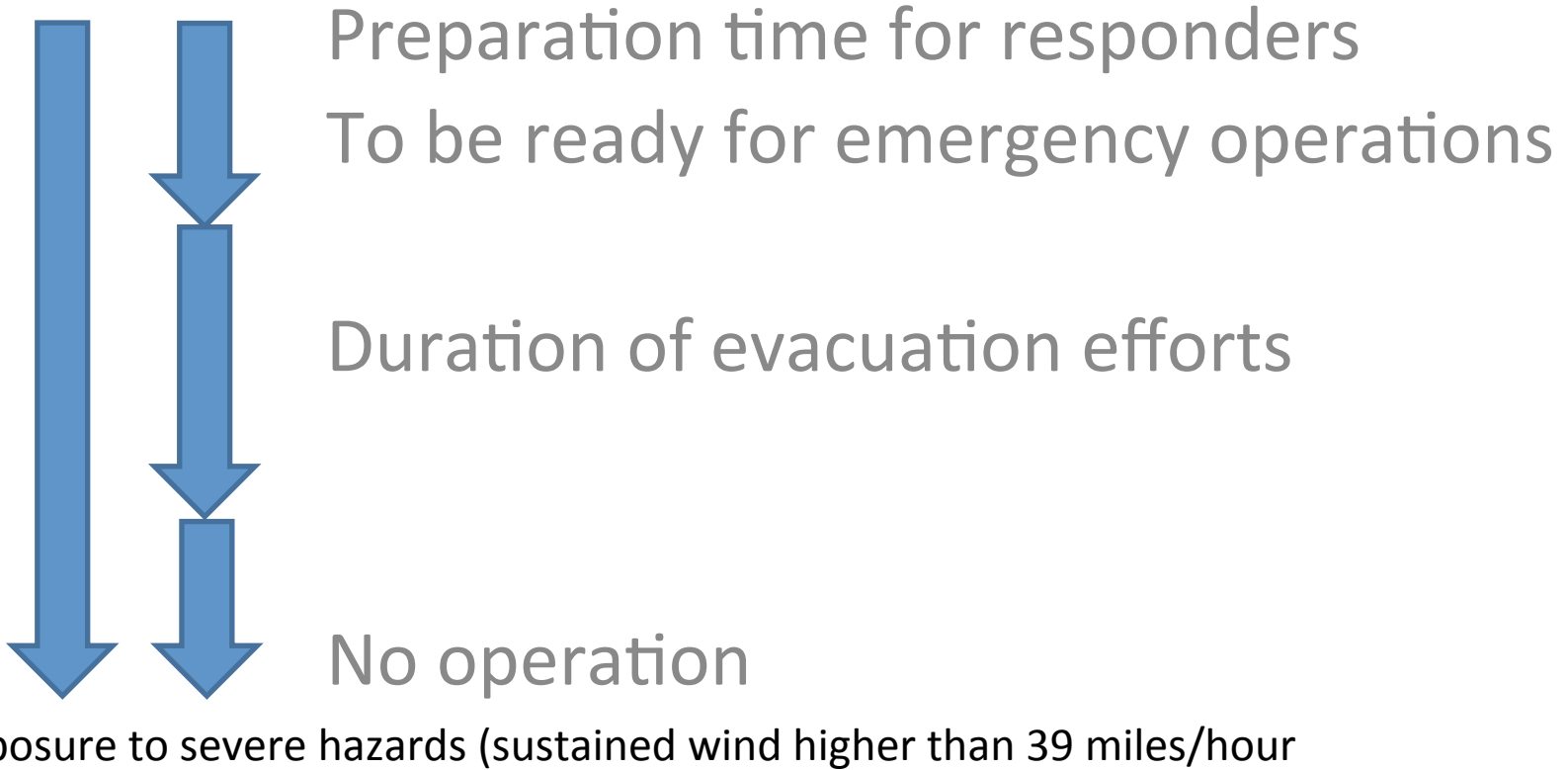
## National governments

States, cities, towns, schools, fire department,  
volunteer firefighters, communities

Timeline is effective for hazards which could be well-predicted with hours of lead time (thanks to the accurate forecast, a timeline approach was developed)

- Good for tropical cyclones, far tsunami, blizzard, etc.
- Not suited for hazards with a short lead time – near tsunami, tornado, flash flood

# Basic structure



# Timeline - In case of Hurricane Sandy – State of New Jersey

-120 hours (5 days)	Upgrade DR Level 2	All of the agencies
-96 hours (4 days)	Plan to operate evacuation centers	States and municipalities
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-76 hours (3 days)	Emergency declaration by governor	State Government
-48 hours (2 days)	Upgrade DR Level 3	All of the agencies
-48 hours (2 days)	Preparation of evacuation centers	County and state level
-36 hours	Preparation for One-way evacuation by vehicles	Transportation sector
-36 hours	Evacuation order by governor	State government
-36 hours	Evacuation center open	States and municipalities
-24 hours	Operate the one-way evacuation	Transportation sector
-24 hours	Stop the operation of public transportation	Related agencies
-12 hours	Emergency evacuation on site	State and municipalities
- 3 hours	Transportation control ends	
0 hour	Stop operation of police and firefighters	

(0 hour does not mean the time hurricane landed, it means the time of starting severe wind higher than 39 miles/hour)

# Hurricane Sandy



Deaths: 148 direct, 138 indirect

Damages: More than USD 68 Billion

Category 2

the largest Atlantic hurricane on record (as measured by diameter, with winds spanning 1,100 miles (1,800 km))

## 1 ) NJ and NY States

### NJ

- Emergency order by 36 hours under the timeline act
- Based on Info NWS, it was very likely that the state is to be hit by the approaching hurricane
- Then, -36 hours: The Governor declared Evacuation Order
- Disseminated to counties, cities, and towns
- 2 a day, the governor was on TV since -36 hours
- Info disseminated through the web and social media to people as well

### NY

- Due to the wide area of strong wind, NY took an early action
- Even before -36 hours, the Governor issued Emergency Declaration
- This action led to prompt actions taken by state's and municipality's actions

## 2) NY City

-36 hours NYC gave evacuation order to people living in the law-lying area

-24 hours NYC gave specific evacuation order to the pople in the zone A

The Mayor frequently had press conferences with media

The Mayor talked about possibility of stopping public transportation, electric failure (blackout), and information on evacuation

Also, provided info in Spanish for many Spanish speakers in NY area



### 3) Federal Government

-24 hours

Requested by several states, the Federal Government gave Emergency Declaration (by the President of the US) to the states of MA, MD, NY, NJ, and Washington D.C.

By the Presidential declaration, all kinds of resources became available for actions responding to preparedness

(4) Early calls by high-level authorities and leaders attracts early actions by agencies and people

① Many people did early evacuation while others were not

② Metropolitan Transportation Agency of NYC activated their Hurricane Plan -48 hours  
With assumption of wind speed higher than 39 mph and storm surges higher than 4~8ft.

MTA stopped the subway -24 hours, and then, gradually, expanded to stop operating bridges and tunnels, No casualties within the transportation system

Plus, they moved buses and trains to safer areas and protected facilities located in low-lying areas. This helped them to operate the subway +7 days at the rate of 98%

Early warning – early action –early recovery!

③ Many press conferences reduced emergency operation by police and fire fighters who are to take their risk to call for evacuation at the local level

On the other hands, some disabled people were not obtain aid

## 5) Importance of laws

NY State law 2-B

State and Local Natural and Man-made Disaster Preparedness

Item 22 State Disaster Preparedness Plans

Item 28 State Declaration of Disaster Emergency

NYC Mayor – evacuation order, NY governor to stop the subway

Based on this state law, the above are issued as a form of **Executive Order**

Even emergency operators need to take  
life-saving actions by themselves

So many fire fighters were killed 9/11  
New York

So many fire fighters, police, and city  
officers were killed 3/11 Japan

A **15-minute rule** was developed  
by some tsunami-affected municipalities  
in Japan

Life-saving operators to save their own  
lives – their operations only last until 15  
minutes before  
the arrival of tsunami

The Government of Japan decided to install the timeline method as a tool for reducing flood risks in major river systems this year

# A big challenge but possible even for near tsunami

Tohoku University, IRIDeS, helped conduct a tsunami evacuation drill based on a time-line in two municipalities in Miyagi Pref. in 2013

- will do in one more this year
- is doing one in Phuket now
- consider planning one in Takloban

In partnership with central and local governments and private sector