
Survey of Damage and Relief Actions in New York after Hurricane Sandy

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1. About Hurricane Sandy

Hurricane Sandy formed in the Caribbean Sea on October 22, 2012 and landed in New Jersey around 8:00 p.m. on October 29. Upon landing, it was a huge storm with an average wind speed per minute of approx. 36 m/s and scope of 1400 km. From October 28 to November 1, the strong winds and storm surge (record-high sea level of 13.88 ft in Manhattan) caused damage mainly in the states of New York and New Jersey. Since this is an important case where a modern city was hit by flooding, we conducted an on-site survey jointly with societies related to disaster prevention, from the viewpoints of grasping the aspects of damage to city services and disaster response.

2. Damage by Hurricane Sandy

In New York and New Jersey, coastal areas were flooded by storm surge (Figure). Main aspects of the damage are as follows.

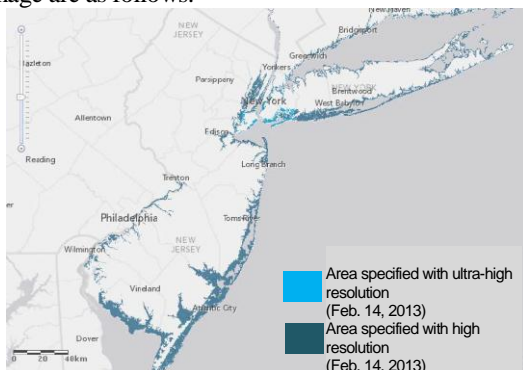


Figure: Flooded Area of Hurricane Sandy
(Source: Federal Emergency Management Agency)

- (i) Human damage: Hurricane Sandy reportedly killed a total of 132 persons in the U.S. and Canada as of November 16, 2012. The main causes of death were "drowning", "fallen trees," "external injuries," and "carbon monoxide poisoning."
- (ii) Damage to transportation facilities: Subway tunnels and stations, street tunnels, etc. were flooded (Photo).
- (iii) Damage to electric power facilities: A substation flooded and exploded in the City of New York and power supply stopped. A total of 8 million households in 17 States were affected by the blackout.
- (iv) Suspension of business in stock exchanges: Stock exchanges were closed on October 29 and 30 to ensure the safety of employees.



Photo: Flooded Subway Station
(Source: Metropolitan Transportation Authority)

3. Response to disaster by government, etc.

The following findings were obtained concerning disaster response.

(1) Preparation and implementation of a timeline of disaster-response actions

Measures for a big hurricane as well as a time schedule (time line) for implementing those measures are prepared during ordinary times, and based on these, drastic measures, including evacuation orders involving hundreds of thousands of people and the suspension of public transportation, were carried out by the day prior to the arrival of hurricane.

(2) Establishment of the joint local task force by the Federal and local governments, etc.

A joint local task force was established by the Federal, State, and municipal governments, and each organization acted efficiently by sharing roles and in close cooperation with each other.

(3) Communication by the heads of administration

Governors, mayors, etc. actively appeared on mass-media to call for evacuation and responsive actions, etc.

(4) Verification of implemented disaster response

PDCA was establishment to verify the actions made in response to the disaster and utilize results for future responses.

[Reference]

On-site Survey on the U.S. Hurricane Sandy

<http://www.mlit.go.jp/river/kokusai/disaster/america/index.html>