Direction of Local Government ICT to Overcome the Great East Japan Earthquake

March 2012
Sendai City Information Policy Department
1. Comparisons between the Great East Japan Earthquake and Sumatra Earthquake

<table>
<thead>
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<tbody>
<tr>
<td>Size of earthquake</td>
<td>M9.0</td>
<td>M9.1</td>
</tr>
<tr>
<td>Area covered by tsunami</td>
<td>561㎢</td>
<td>—</td>
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<tr>
<td>Number of deaths or missing</td>
<td>Approximately 19,000</td>
<td>Approximately 300,000</td>
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<tr>
<td>Totally or partially destroyed houses</td>
<td>approximately 370,000</td>
<td>—</td>
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<tr>
<td>Cost of damage</td>
<td>approximately 210 billion U.S. dollars</td>
<td>approximately 8 billion U.S. dollars</td>
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2. Damage situation in Sendai City (1)
2. Damage situation in Sendai City (2)

- Area covered by tsunami
- Near Okada in Miyagino Ward
- Arahama in Wakabayashi Ward

Sendai City Office
Okada
Arahama

Maps and images showing the affected areas.
3. Situation in Sendai City (1)

Minami-Gamo Sewerage Treatment Plant in normal times

Position of view from photograph on next slide.

Sea ↔ Land
Day of the earthquake
3. Damage situation in Sendai City (3) - 1

3. 1 Information systems situation

3. 1. 1 Operations information systems situation

(1) Directly after the quake
No damage such as the falling over of information system servers.
As it was unclear as to how long power outages would continue, each system was temporarily shut down.

(2) March 13
Resumption of office LAN operations such as groupware.

(3) March 17
Resumption of online services such as citizen registration and tax operation systems.
3. 1. 2 Sendai City official website

(1) Network with Tokyo was suspended directly after the quake, a temporary server was set up in Tokyo and a makeshift site started. (March 11, 10pm)

(2) Official website restored on about March 15.
3. Situation in Sendai City (4) — 1

3. 2 Response to operations created by the disaster

(1) Authorities were busily occupied with emergencies and lifesaving, gathering information and contact coordination, evacuation center establishment, management and distribution of supplies, and emergency measures for infrastructure and public facilities.

(2) After about one week, in order to deal with the great amount of work that arose such as issuing damage certificates etc., investigations into the introduction of an information system began.
3. 2 Response to operations created by the disaster

（3）Conforming to the actual state of a city designated by ordinance, in response to not having a single information system to cover all the operations, and with each related division being inundated with operations, a simple to use system that could be used immediately was created through repairing existing systems and simple development.

（4）Currently, Sendai City as a whole, in order to provide continual and thorough support to the victims, support systems are being developed.
4. Cooperation between local governments in the disaster area (1)

4. 1 Details

In order to receive rapid support from support groups and businesses etc. to meet the needs of local governments, horizontal networks between local governments in the disaster area have been constructed, setting recovery and restoration as their goal.

Sendai City and Miyagi Prefecture have called out to local governments centered in Iwate, Miyagi, and Fukushima. At present there are 43 local governments participating.

This has been brought up as a subject for support in the Ministry of Internal Affairs and Telecommunications Information and Communications Advisory Council's "Information and Communications Policy Toward the Realization of an Intelligent Telecommunications Society" mid-term report (July 25, 2011).

4. 2 Designation

「ICT Section Network for Local Authorities in the Great East Japan Earthquake disaster-stricken area」
Abbreviation ISN (taken from the English title)
4. Cooperation between local governments in the disaster area (2)

4. 3  Activities

① Present a total of about 400 computers, donated by companies, to 5 cities and 4 towns such as Rikuzen Takata City and Yamada Town, and support the restoration of local government functions and promotion of victim support operations.

② On November 24 the "Great East Japan Earthquake and Local Government ICT" open seminar was held in Sendai City, with representatives from 7 local governments telling what problems arose and how they were solved, providing examples that can be used as reference for the future advancement of local government ICT, including those in the disaster region. The content of the seminar has been released at the following URL: http://www.city.sendai.jp/shisei/1202080_1984.html
5. Example of report at the ISN seminar (1)

Yamada Town 1 Entire town is swamped by the tsunami (immediately before the backwash)
Yamada Town 2  Large scale fires occurred
5. Example of report at the ISN seminar (3)

Yamada Town 3  Morning of March 12
5. Example of report at the ISN seminar (4)

Yamada Town 4  Safety conformation in the public office hall
5. Example of report at the ISN seminar

Rikuzen Takata City 1  Damaged government buildings
5. Example of report at the ISN seminar (6)

Rikuzen Takata City2  Damaged server room
5. Example of report at the ISN seminar (7)

Ishinomaki City 1  Evacuation route in front of the city office
5. Example of report at the ISN seminar (8)

Ishinomaki City 2  Base-isolated floor and cables
5. Example of report at the ISN seminar (9)

Ishinomaki City 3  Damaged Kitakami General Branch Office
In Ishinomaki City, government buildings and communications equipment communicated with the 3 general offices that were washed away via communications satellite. In this example, 2 months were required for restoration, however, if this type of system is developed in advance as a system that can be deployed rapidly, it is thought that restoration can be achieved in a very short time. It is also thought that the acceleration of the speed in which data is transmitted through satellites is a necessary item of development.
6. Direction of local government ICT policy for overcoming the Great East Japan Earthquake

Issues leading from the Great East Japan Earthquake

1. Remarkable decline in local government functions
2. Transformation of key local government foundations
3. Rapid increase in local government restoration operations
4. Long-term loss of power and communications networks

Local government ICT policy direction

1. Measures toward clouds
   Improve administration efficiency, lower costs and increase convenience
2. Measures toward a common number system
   Increase convenience such as improving online applications etc.
3. Improve literacy
   School education, lifelong learning
4. Support new industry development and improvement of existing industries

Local government ICT policy direction aimed at improving disaster response capability

1. Maximize use of clouds
   Measures toward continuing existing operations, preserving data and disaster response operations
2. Improvement of provision of information to victims
   In principle, have ICT used by everyone
3. Maintain regional and community bonds using ICT
   Community building in temporary housing, restoration housing and evacuation areas
4. Power supplies with strong disaster resistance, secure communications networks
   Improve independent power generation equipment, duplicate communications networks
5. Policy for planning measures to respond to large-scale disasters (next-generation BCP)
   Response plan where local governments can demonstrate those functions even in the event of a disaster on the scale of the Great East Japan Earthquake
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7. Division of roles between national and local governments

**Issues leading from the Great East Japan Earthquake**

1. Remarkable decline in local government functions
2. Transformation of key local government foundations
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**National government ICT policy direction aimed at improving disaster response capability**

1. Develop framework to urgently restore local government functions
2. Develop emergency communications networks within the disaster area and cloud and internet emergency communications networks framework
3. Support cloud use for national restoration operations
4. Improve reliability of disaster resistance of fixed and mobile phone networks etc.

**Local government ICT policy direction aimed at improving disaster response capability**

1. Maximize use of clouds
2. Provision of timely information to victims based on their needs
3. Maintain regional communities and bonds using ICT
4. Securing power supplies
5. Set policy plans for ICT that can overcome disasters the scale of the Great East Japan Earthquake
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