Progress of Japan’s Disaster Management System

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Cooperated with Japan Meteorological Agency

Outline
1. Natural Disasters in Japan
2. Disaster Management System in Japan
3. Meteorological Information Services through Collaboration with Disaster Prevention Authorities
4. Example (Typhoon Nabi 2005)
5. New Challenges in Japan

Japan has wide variety of natural disasters
- Earthquakes
- Tsunamis
- Volcanic Eruptions
- Typhoons (July – October)
- Heavy Monsoon Rains (May – July)
- Floods
- Landslides
- Snow Avalanches

Severe Damage by Series of Typhoons

<table>
<thead>
<tr>
<th>Year</th>
<th>Typhoon</th>
<th>Death Toll</th>
</tr>
</thead>
<tbody>
<tr>
<td>1945</td>
<td>Makurazaki Typhoon</td>
<td>3,756</td>
</tr>
<tr>
<td>1947</td>
<td>Catherine Typhoon</td>
<td>1,930</td>
</tr>
<tr>
<td>1948</td>
<td>Ion Typhoon</td>
<td>838</td>
</tr>
<tr>
<td>1950</td>
<td>Jane Typhoon</td>
<td>539</td>
</tr>
<tr>
<td>1951</td>
<td>Ruth Typhoon</td>
<td>943</td>
</tr>
<tr>
<td>1954</td>
<td>Toyamaru Typhoon</td>
<td>1,761</td>
</tr>
<tr>
<td>1958</td>
<td>Kanogawa Typhoon</td>
<td>1,269</td>
</tr>
<tr>
<td>1959</td>
<td>Ise-wan Typhoon</td>
<td>5,098</td>
</tr>
</tbody>
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1959 Ise-Wan Typhoon
the 1st epoch-making turning point

- Response oriented approach
- Preventive approach
- Individual approach
- Comprehensive multi-sectoral approach
- Investments for disaster reduction

Disaster Countermeasures Basic Act 1961
- Central Disaster Management Council chaired by the Prime Minister
  - National Coordinating Body with all relevant Ministers & Japanese Red Cross, Public Broadcasting, Semi-Public Sectors
  - Annual Gov’t Official Report on Disaster Countermeasures
  - The Cabinet must officially report the disaster countermeasures to the National Diet
- Formulation of “National Basic Disaster Management Plan for Disaster Prevention”
  - The Disaster Management Operation Plan (Sectoral)
  - The Local Disaster Management Plan
- Designation of “Disaster Prevention Day”
  - Public Awareness Programs
**JAPAN’s Government System**

**3 Layers of Government**

- **National Government**
  - (Prime Minister is elected by the National Diet)

- **47 Prefectural Governments**
  - (Governor is elected by the residents)
  - Largest Prefecture: Tokyo 12.6 million
  - Smallest Prefecture: Tottori 0.6 million
  - (Population data based on national census in 2005)

- **1,966 Cities, Towns, Villages Municipal Governments**
  - (Mayor is elected by the residents)
  - (as of March 2006)

**Organization of multi-sectoral coordination bodies for disaster management at national and local levels**

- **In prevention and preparedness phase**
  - Central Disaster Management Council
  - Prefectural Disaster Management Council
  - Municipal Disaster Management Council

- **In emergency response phase as well as transition to recovery and reconstruction phase**
  - Individual Inter-Ministerial Headquarters for specific disaster with extreme-severity
  - On-site operations coordination centres

**Number of Death/Missing by Weather-related Disasters in Japan**

**Ise-wan Typhoon**

**National Government**

- **Minister of State for Disaster Management**
- **Cabinet Office**
- **Cabinet Secretariat**
- **Finance**
- **Education, Culture, Sports, Science & Technology**
- **Health, Labour & Welfare**
- **Agriculture, Forestry & Fisheries**
- **Economy, Trade & Industry**
- **Land, Infrastructure & Transport**
- **Environment**
- **Japan Coast Guard**
- **Defence Agency**
- **National Police Agency**
- **Fire & Disaster Management Agency**
- **Ministry of State for Economic and Fiscal Policy**
- **Ministry of State for Science & Technology Policy, and Food Safety**
- **Ministry of State for Registry Reform**
- **Minister of State for Disaster Resilience & Anew Aliens**
- **Minister of State for Disaster Resilience & Central Achievers**

**To ensure comprehensive and coordinated disaster reduction efforts**

**Prime Minister**

**Minister of State for Disaster Management**

**Central Disaster Management Council**

**Chairman**

**Secretary Organization**

**Central Disaster Management Council**

**Members of the Council**

- Chief of Designated Public Corporations
- Governor of the Bank of Japan
- President of the Japanese Red Cross Society
- President of NHK (Public Broadcasting Corporation)
- President of NTT

**Academic experts (4)**

**Inquiry**

**Report**

**Opinion**

**Commissions for Technical Investigation**

- Tokyo Inland Earthquake
- Tohoku Earthquake
- Lessons Learnt from Disasters etc.

**Parliamentary Secretary of the Cabinet Office**

**Secretary**

**Chief of Technical Investigation**

**Secretary General for Disaster Management, Cabinet Office**

**Manager of Fire and Disaster Management Agency**

**Chairman**

**Parliamentary Secretary of the Cabinet Office**

**Secretary General for Disaster Management, Cabinet Office**

**Manager of Fire and Disaster Management Agency**

**Chief of Technical Investigation**

**Secretary**

**Chief of Technical Investigation**

**Secretary General for Disaster Management, Cabinet Office**

**Manager of Fire and Disaster Management Agency**
A comprehensive contingency plan - identifies basic countermeasures for each type of disaster such as earthquake and tsunami, storm and flood, volcanic eruption and snow disaster as well as man-made disasters - covers all phases of disaster management cycle; prevention/preparedness, emergency response and recovery/rehabilitation

Disaster Management Planning System

- Basic Disaster Management Plan (formulated by Central Disaster Management Council)
  - A comprehensive contingency plan
  - identifies basic countermeasures for each type of disaster such as earthquake and tsunami, storm and flood, volcanic eruption and snow disaster as well as man-made disasters
  - covers all phases of disaster management cycle; prevention/preparedness, emergency response and recovery/rehabilitation

- Disaster Management Operation Plan (formulated by each Ministry and Agency as well as major public corporation)

- Local Disaster Management Plan (formulated by each Prefecture and Municipality)

Disaster Management Operation Plan

- Development and Improvement of Disaster Prevention Facilities
  - Observation equipment such as meteorological satellites, weather observation radars and seismometers
  - Systems for communicating emergency information such as telecommunications and broadcasting facilities etc.

- National Land Conservation
  - Soil conservation, River improvement, Construction of dams for flood control, Soil erosion control, Landslide prevention, Coastline conservation, Agricultural land and facilities disaster management etc.

- Disaster Awareness & Knowledge, Disaster Reduction Drill
  - Community-based Voluntary Disaster Reduction Organs and Volunteer Activities

Overview of JMA Meteorological Services

- Observations
  - Weather Observation
  - Ocean Observation
  - Radio Observation
  - Space Based Observation
- Analysis, Forecast, Application
  - Computer System for Meteorological Services
  - Numerical Weather Prediction
  - Collection and Dissemination of Meteorological Data
- End User Products
  - Warnings
  - Advisories
  - Typhoon Forecast
  - Weather Forecast
  - One Week Forecast
  - Aeronautical Met. Information
  - Marine Met. Information

Delivery of Meteorological Information

- JMA
- Local Authority
- City
- Central Authority
- Mass media
- Citizen

Collaboration between Met. Services and Disaster Management Authorities

JMA promotes the provision of effective meteorological information services through collaboration with river management authorities, local governments, etc.

Example of collaboration

- Flood Forecasting Services...River Bureau
- Sediment Disaster Alert...Sabo Department/Prefecture
Flood Forecasting Services

- JMA
- Weather forecast
- River Bureau
- Flood Control

207 Rivers with River Bureau of MLIT
41 Rivers with Prefectural Government
(as of 1 January 2006)

Sediment Disaster Alert

- JMA
- Prefecture (SFD, EROS, and sediment control)
- Sediment Disaster Alert

- Joint Issuance
- Local Authorities (City and others)

- Alert on sediment disaster for each city.
- Expected rainfall intensity
- Graphical information in addition to plain text warning

Example

Typhoon Nabi (No. 14) 2005

Typhoon Nabi T0514
Central Pressure: 939hPa (min925)
Maximum Wind Speed: 45m/s (max50)
Storm Warming Area: 300km

Hurricane Katrina
Central Pressure: 902hPa
Maximum Wind Speed: 75m/s
Storm Warming Area: 140-220km

Precautions by Government

- Strong Warning by JMA
- 5 September
  High Level Emergency Response Team Convened Prior to Landfall
  - 5 Action Points Decided
- 5 September
  Call to the Public by the Chief Secretary of the Cabinet

Typhoon Record

- Record Breaking Rainfall
  - 757mm/day at Saijyou city, Aichi pref.
  - 713mm/day at Ino town, Kochi pref.
  - 644mm/day at Niyodogawa town, Kochi pref.
- Record Breaking Peak Gust
  - 59.2m/s at Tanegashima island, Kagoshima pref.
  - 58.1m/s at Yaku island, Kagoshima pref.
  - 55.6m/s at Minami-daito island, Okinawa pref.

Weather forecast

Strong Warning by JMA

- 5 September

Precautions by Government

- 5 September

Call to the Public by the Chief Secretary of the Cabinet

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Massive Evacuation

- 384,105 evacuees

Quick Response by Government

- 1st Government response coordination meeting - 6th Sep.
- Government On-Site damage survey team headed by Minister of State for Disaster Management– 9th Sep.

- casualties & damage to minimum
  (casualties: 26 Dead, 3 Missing)

The Challenges Ahead in Japan

- How can we decrease casualties by possible Earthquakes!
  - Retrofit / Rebuild old existing houses & buildings
  - Affix furniture and adhere protective films on old windows
  - Encourage companies to make their own contingency plans etc.

- How can we decrease casualties by possible Tsunamis!
  - Distribute Tsunami Hazard Maps
  - Disseminate Tsunami Warning effectively
  - Ensure that people run immediately to safe place etc.

- How can we further decrease casualties by Typhoons & Floods!
  - Effective advance evacuation warnings for elderly & disabled
  - Distribute Flood Hazard Maps etc.

Proverb by Japanese Physics Scientist
Dr. Torahiko TERADA (1878-1935)

「天災は忘れた頃にやってくる」

“Natural Disasters will hit us by the Time people have forgotten about it”

Thank you