“Typhoon Isewan and Its Lessons”

Japan Water Forum

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Japan Water Forum
In 1959, Typhoon Isewan hit Central Japan and caused the worst damage, due to high tides and floods.
Typhoon Isewan courses

Typhoon Makurazaki
Sep. 17 1945

Typhoon Muroto
Sep. 21 1934

Typhoon Isewan
Sep. 26 1959

Typhoon No. 13
Sep. 25 1953
Water, water, everywhere…

( Kanie Town, Ama District)
Tragedy caused by driftwood, Eastern part of Nagoya Port

An expanse of driftwood

Logs washed into a residential area
Inundation up to the eaves of houses in Nagashima Town

Members of Self Defence Forces evacuating residents
Inundation area by Typhoon Isewan in 1959
## Comparison between Typhoon Isewan and Hurricane Katrina

<table>
<thead>
<tr>
<th>Item</th>
<th>Typhoon Isewan</th>
<th>Hurricane Katrina</th>
</tr>
</thead>
<tbody>
<tr>
<td>Came ashore on</td>
<td>Sept. 26, 1959</td>
<td>Aug. 25, 2005</td>
</tr>
<tr>
<td>Central pressure (when it came ashore) (hPa)</td>
<td>929</td>
<td>920</td>
</tr>
<tr>
<td>Wind velocity (when it came ashore) (m/sec)</td>
<td>45</td>
<td>62</td>
</tr>
<tr>
<td>Killed or missing (number of people)</td>
<td>4,977</td>
<td>1,204</td>
</tr>
<tr>
<td>Soaked houses (number of houses)</td>
<td>190,135</td>
<td>160,000</td>
</tr>
<tr>
<td>Inundated area (km²)</td>
<td>310</td>
<td>374</td>
</tr>
</tbody>
</table>

Sources:
Article on YOMIURI ONLINE of September 1, 2005 at http://www.yomiuri.co.jp/
Article on asahi.com of September 14, 2005 at http://www.asahi.com/
Digital Typhoon data collected by National Institute of Informatics
2005 Hurricane/Tropical Data for Atlantic collected by Unisys
Data collected by the National Climatic Data Center
Turning point for disaster prevention systems in Japan

1959 9.26 Typhoon Isewan hits

9.29 “Central Japan disaster relief headquarter” was established

10.26 several disaster-related legislation passed Diet to facilitate several measures of Ministry of Construction, Office of Prime Minister, Ministry of Finance, Ministry of Education, Ministry of Health and Welfare, Ministry of Agriculture and Forestry, Ministry of Labor, etc,

provide special subsidies
1960.11 Disaster Measures Basic Law enacted
- the first comprehensive law based on the lessons learned;
  - physical damage were tremendous.
  - lack of consideration of disaster prevention
  - inadequate flood defense system
  - inadequate warning and evacuation system
  - aspect of human-made disaster

in order to protect the country of Japan, the life, health and property of the people of Japan
Countermeasures against storm surge in three major bays (Tokyo, Osaka, Nagoya) were designed with external force equivalent to typhoon Isewan.
Turning point for disaster prevention systems in Japan

Designate September 1 of every year as disaster prevention day, and various events concerning disaster prevention and drills are held.
• JWF and Japanese Government dispatched river engineers and flood fighting experts to New Orleans to exchange experience and knowledge of recovery/reconstruction of disaster, and flood fighting.

• Japan should convey and disseminate their experiences to contribute to mitigate flood, high tide damage.
December 17, 2005, Nagoya
Exchange of knowledge, experience, lessons-learned, is very important.

Thank you for your attention.
### Recent Large-Scale Natural Disaster

<table>
<thead>
<tr>
<th></th>
<th>Typhoon Isewan</th>
<th>Indian Ocean Tsunami</th>
<th>Hurricane Katrina</th>
<th>Landslide in the Leyte island of the Philippines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Caused Date</strong></td>
<td>Sep-26, 1959 (Landing)</td>
<td>Dec-26, 2004 (Occurred)</td>
<td>Aug-29, 2005 (Landing)</td>
<td>Feb-17, 2006 (Occurred)</td>
</tr>
<tr>
<td><strong>Scale</strong></td>
<td>Central pressure at landing: 929hPa Maximum wind velocity: 75m/sec</td>
<td>Magnitude: 9.0</td>
<td>Central pressure at landing: 910hPa Maximum wind velocity: 78m/sec</td>
<td>Collapsed earth: 5,000,000m³</td>
</tr>
<tr>
<td><strong>Affected person</strong></td>
<td>Death: 4,697 Missing: 401 Injured: 38,921</td>
<td>Death: More than 179,000 Missing: 111,000 Displaced: 1,766,000</td>
<td>Death: 788</td>
<td>Death: 132 Missing: 1,627</td>
</tr>
<tr>
<td><strong>Affected Houses</strong></td>
<td>Flowed out: 153,890</td>
<td>Collapsed: 507,000*1</td>
<td>Collapsed: 285,974</td>
<td>Collapsed: More than 300</td>
</tr>
<tr>
<td><strong>Total Damage Cost</strong></td>
<td>500 billion yen (2~3 trillion yen in the present value)</td>
<td>7.8 billion dollars*2</td>
<td>10~25 billion dollars</td>
<td>-</td>
</tr>
<tr>
<td><strong>Damaged Area</strong></td>
<td>30,764ha</td>
<td>About 155,000km (Coastline length of countries faced Indian Ocean)</td>
<td>37,400ha (80% of land area in New Orleans City)</td>
<td>5.9km²(Landslide area), Inundation area: 1.47km²</td>
</tr>
<tr>
<td><strong>Water Supply and Sanitary Situation after the disaster</strong></td>
<td>-</td>
<td>-</td>
<td>Infectious disease occurred in refuge, Public service of New Orleans City stopped completely.</td>
<td>the infectious disease spread, because of the high temperature and humidity.</td>
</tr>
<tr>
<td><strong>Restoration and Reconstruction Cost</strong></td>
<td>-</td>
<td>Urgent necessary total estimated cost: 997 billion dollars (January 6, 2005)</td>
<td>Restoration cost: 51.8 billion dollars</td>
<td>-</td>
</tr>
</tbody>
</table>

*1: Data of International Federation of the Red Cross (Feb-23, 2005) and Report of United Nations Office for the Coordination of Humanitarian Affairs
*2: White paper of Disaster prevention in Japan, 2005