1. Damages caused by the Great East Japan Earthquake

2. MLIT’s emergency response to the Great East Japan Earthquake

3. Recent policy changes regarding tsunami disaster countermeasures
Basic Principles for MLIT’s Emergency Response

○ Give primacy to saving lives, and exert every possible effort in rescue and relief operations and securing of emergency transportation routes by land, air or sea.

○ Vigorously pursue such measures as livelihood assistance to affected persons, sustaining of logistics operations, rehabilitation of facilities under the jurisdiction of MLIT such as roads, ports, airports, railways and rivers, securing of housings for victims and assistance to disaster-affected municipalities.
Establishment of MLIT’s Emergency Headquarters

- Established MLIT’s Emergency Headquarters at 15:15 (approx. 30 minutes after the quake)
  Chief of headquarters: Minister of MLIT, Members of headquarters: Director-Generals of MLIT’s Bureaus
- The first meeting was held from 15:45, March 11. Meetings were held three to four times a day in the period immediately after the earthquake. 49 meetings have been held since.
- Information is shared simultaneously with regional development bureaus nationwide by utilizing the TV conference system.
- Prompt information sharing, quick decision-making and implementation of measures could be achieved.
Restoration of Roads (Operation “Toothcomb”)

First Step
Mar. 11: Earthquake occurred

Second Step
Mar. 15: Establish the vertical artery

Third Step
Mar. 18: National Route No.45 & 6 were 97% rehabilitated (operation completed)

Toothcomb Operation

<Reasons for the fast restoration of roads>
① Damages of bridges were reduced by antiseismic reinforcement.
② Concentrated efforts on clearing the “16 routes” under the “Toothcomb Operation”.
③ Cooperation of local construction companies based on the disaster agreement.
Restoration of Roads

Rikuzentakata City, Iwate Prefecture

Before Road Restoration
(March 16, 2011)

During Road Restoration
(March 16, 2011)
Emergency Rehabilitation of Roads

Kesen Ohashi Bridge, Rikuzentakata City, Iwate Pref.

Kesen Ohashi Bridge

Superstructure of the bridge washed away by tsunami (March 19, 2011)

Temporary bridge was built to secure transportation route (July 12, 2011)
 Restoration of Sendai Airport

- Sendai Airport was severely damaged by inundation caused by massive tsunami.
- Early recovery efforts were performed to clear the runway for rescue planes.
- Water draining began on March 17 by water drainage pump vehicles.
  - March 29: 3,000m-runway usable day and night.
  - April 13: Operation of civilian airplanes resumed.

Water drainage at Sendai Airport started on March 17.
Due to disruption of Tohoku JR Line, transportation of petroleum to Morioka and Koriyama became unable. Instead of the Tohoku Line, the freight trains carrying petroleum were operated through the Japan Sea side.

Approx. 57,000kl (about 2,850 20kl-tanker trucks) of petroleum was transported in about one month period before the Tohoku Line resumed. The operation contributed to easing of fuel shortage in the disaster affected areas.
TEC-FORCE Dispatch

OTECH-FORCE (Technical Emergency Control Force)
Specialist group that provides technical assistance for fast rehabilitation in the affected areas at the time of large scale natural disasters. (consists of MLIT staff)
62 staff were dispatched on the day of the disaster, 397 staff the next day and there were more than 500 staff by three days later. (18,115 person-day as of Jan 9, 2012)

18,115 person-day as of Jan 9, 2012
TEC-FORCE Dispatch  (Disaster response equipment)

- Drainage pump vehicles (30m³/min)
- Satellite phones
- Movable task force HQ
- Ku-SAT (Small satellite aperture terminal)
- Lighting vehicle
Assisting disaster affected municipalities (liaison officers)

- Municipalities in coastal areas suffered severe damages to their buildings and to their staff, and their self-governing functions were paralyzed. MLIT officials (directors of regional bureaus or deputy general managers of local offices) who know well about disaster response were dispatched to afflicted municipalities from the day after the disaster (for about 80 days).
- Promptly implemented information sharing, field surveys, and needs assessment of municipalities.

Attending the headquarters meeting (Kuji City, Iwate Pref.)

Attending the headquarters meeting (Tanohata Village, Iwate Pref.)

On-site investigation (Yamada Town, Iwate Pref.)

Inspection of temporary housing (Yamada Town, Iwate Pref.)
Assisting disaster affected municipalities (restoration of telecommunications)

- Dispatched satellite communication vehicles to municipalities with paralyzed telecommunication systems where phone lines and mobile phone base stations were severely damaged by the earthquake and tsunami.
- Restored communication between Regional Development Bureaus and municipalities and between the headquarters and branch offices of those municipalities.
- Quick recovery of telecommunications enabled MLIT to gather information on the extent of damages and to understand the needs of municipalities, and to deliver appropriate support for municipalities.

Allocation of satellite communications vehicles
(Ofunato City, Iwate Pref.)

Installation of Ku-SAT
(Tanohata Village, Iwate Pref.)
Assisting disaster affected municipalities  
(Procurement of relief supplies)

○ Based on the needs of the municipalities, the relief supply procurement team was organized on March 13. (with cooperation of Japan Civil Engineering Contractors Association, Inc., etc)
○ Responded until March 31 when transportation and telecommunications started to normalize.
○ Delivered requested relief supplies in 3 days on average and with over 90 % achievement rate.

Relief supply procurement team  (Tohoku Regional Development Bureau)  
Temporary housing  (Minamisanriku Town )
Emergency Water Drainage Measures

- Pacific coastal regions were widely inundated due to tsunami.
- In areas where natural drainage was difficult due to the large extent and depth of inundation, drainage pump vehicles of MLIT gathered from around the country were utilized to conduct intensive drainage operation.
- 3,945 vehicle-day of drainage pump vehicles operated in 10 cities and 6 towns.

<table>
<thead>
<tr>
<th>Prefecture</th>
<th>Cities/Towns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iwate</td>
<td>1 city, 1 town</td>
</tr>
<tr>
<td>Miyagi</td>
<td>7 cities, 4 towns</td>
</tr>
<tr>
<td>Fukushima</td>
<td>2 cities, 1 town</td>
</tr>
</tbody>
</table>

① Kanaya, Ishinomaki City
- Mar 28

② Oomagari, Higashi-Matsushima City
- Mar 27
- Apr 3
Emergency Rehabilitation of Coastal Levees

Sendai Bay Southern Coast (Kabasaki Coast) (Iwanuma City, Miyagi Pref.)

Destroyed Levees (April 26, 2011)

Rehabilitation work (August 31, 2011)
Reconstruction of Coastal Levees

Step 1 (Emergency rehabilitation 1) - completed by flood season

- Levee washed out by tsunami
- Large sandbags (weatherproofed)
- High-tide protection level (T.P+2.0m)

Step 2 (Emergency rehabilitation 2) - completed by the typhoon season -

- Large sandbags (weatherproofed)
- High-waves protection level (T.P+3.8 - 6.2m)
- High-tide protection level (T.P+2.0m)

Step 3 (Full rehabilitation) - to be completed in about 5 years -

- High-waves protection level (T.P+3.8 - 6.2m)
- High-tide protection level (T.P+2.0m)

Yamamoto Coast
Miyagki Pref.