Emergency Response by Japanese Fire Service Organizations

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I. Institutional Arrangement for Firefighting and Disaster Management in Japan



Local Autonomy in Japan



- ✓ The central government and local governments have equal and co-operative relationships, not hierarchical or superior-subordinate relationships.
- The fundamental public services are mainly provided by local governments welfare being, primary education, sanitation, fire service.
- ✓ The central government's "involvement" with local governments' policy and operation is limited in the scope which the laws and the regulations permit.

Cooperation among the central government, prefectures and municipalities for fire services



Institutional Arrangement in Fire Services



Fundamental Arrangement for Activities by Fire Service Organization

Ordinary Fire, Accident & Disaster

Managed by local fire service organization, which is established by municipalities



733 fire service organizations across the nation with 162,124 professional firefighters and 859,995 volunteer fire corps



Extraordinary Disaster

FDMA to function as the control tower with dispatching the Emergency Fire Response Team to the disaster hit area

Coordination to dispatch the Emergency Fire Response Team

Request from Prefectural Governor of Disaster Hit Area

FDMA Commissioner's Instruction or Request to call out local fire service organizations outside the disaster hit area

The Emergency Fire Response Team to be formed to dash to the disaster hit area

Emergency Fire Response Team

- the elite units that rush for rescue from various regions across the country

Established in 1995

- Having been dispatched to disaster hit areas in the event of large scale or extraordinary disasters 32 times ever, such as earthquake, landslide, flood, volcano eruption that put huge damages on people
- Composed of 5,301 units (Firefighting: 1,904, Rescue: 462, Ambulance: 1,232 Air: 76 and so forth) at the beginning of April 2016

Fire and Disaster Management Agency

Figures out disaster information immediately, puts Emergency Fire Response Teams in action, and performs other operations. The commissioner of the Fire and Disaster Management Agency requests, or instructs the dispatch of Emergency Fire Response Teams at the time of large-scale or extraordinary disasters.

II. Fire Service Organization's Response to Extraordinary Disasters

Damage in Great East Japan Earthquake

On 14:46, March 11th 2011, a great earthquake at the magnitude of 9.0 hit northern east Japan, causing huge tsunami to strike the wide coastal area with leaving around 20 thousands people dead and 2.6 thousands people missing.

Character of the Disaster

- ✓ The largest scale earthquake on record in Japan.
- ✓ Shaking a lot of areas in northern part of Japan for six minutes on and off.
- Causing the huge tsunami the main cause of the casualty and the damage in the disaster hit areas
- ✓ At most, around 450 thousands people were forced to be evacuated 140 thousands of whom still cannot return to the original place to live in.
- ✓ The aftershocks at the magnitude of more than 5.0 have occurred around a thousand times.

Outline of Damage as of September 1st							
Casualty	lwate pref.	Miyagi pref.	Fukushima pref.				
Dead : 19,475	5, 132	10, 553	3,678				
Missing : 2,587	1,123	1, 235	225				
(Dead and Missing in total : 22,062)							
Injured : 6,221	211	4,145	183				

Damage to B	uildings	lwate pref. Miyagi pref.		Fukushima pref.	
Fully destroyed	: 121,744	19, 507	82, 999	15,194	
Half destroyed	: 279,107	6,570	155,129	79,575	
Partially destroyed : 744,328		18, 931	224,198	141,332	
Cases of Fire	lwate pref.	Miyagi pref	. Fukushim	na pref.	
330	33	137	38		

Damage in Great East Japan Earthquake and Activities of Fire Service Organization

Outline of Damage on Fire Service Organizations

Regular Fire Service			Volunteer Fire Service		
Firefighters	Dead and Missing 27		Volunteer Firefighters	Dead and Missing 254	
Damage on Buildings (fully, half or partially destroyed)Headquarters and Fire stations : 143, 					
			Damage on Buildings (out of use)	Depot of volunteer fire corps: 450	
Damage on Vehicles Vehicles: 86, Fire boat: 2, etc. Helicopter: 1					
			Damage on Vehicles etc.	Vehicles:251	

Emergency Responses by Fire Service Organizations

- ✓ Local fire service organization based in the disaster hit areas carried out firefighting, rescue, ambulance service as well as instructed people to evacuation in coordination with other fire departments in the same prefecture which dashed there for support.
- ✓ Volunteer Fire Corps based in local area, in addition to the above mentioned activities, did flood control such as closing water gates, etc..
- ✓ In deeply damaged three prefectures, firefighters were dispatched from inland area to coast side for supporting activities.
- ✓ Also, volunteer firefighters based in the inland were dispatched to coast side, and the total number of volunteer firefighters mobilized to the disaster-hit areas were over 1,400.
- ✓ Examples of rescue activities enforced by fire service organization, etc. Rescued 200 people isolated at Funakoshi elementary school in Iwate pref, 630 people isolated at Onagawa town in Miyagi pref and 600 people isolated at Kesennuma city in Miyagi pref.

Emergency Fire Response Team activities in deeply damaged areas due to Great East Japan Earthquake

- ✓ Just after the Great East Japan Earthquake occurred, Emergency Fire Response Teams were dispatched to the three prefectures - Iwate, Miyagi and Fukushima, with an instruction of the Commissioner of FDMA.
- ✓ The firefighters mobilized in the great earthquake amounts to about 30,000, accounting of around 20% of all the firefighters in Japan.
- The ground units made firefighting, rescue and ambulance service while the aviation units carried out rescue, aerial firefighting and information collection, having saved 5,064 people.

Flood in Joso City due to Collapse of River Bank

Outline of Damages

- On 10th September, 2015, the city of Joso, north of the capital, Tokyo, was hit by a wall of water after the Kinugawa River burst its banks due to the rainfall unprecedented for this area.
- ✓ 3 people died, 54 injured and around 5,500 houses fully or partially destroyed.
- ✓ A large scale typhoon is one of the causes for the heavy rain, damaging other parts of Japan as well to take 5 people's lives.

Search and Rescue by Fire Service Organization

- The responders from fire service organization saved 1,742 people.
- Various kinds of rescue teams local fire service, rescue teams from other fire service organization in the prefecture, the Emergency Fire Response Team and volunteer fire corps, worked in collaboration with one another.

Emergency Fire Response Team

- The Emergency Fire Response Team was organized based on the prefectural governor's request with around 2,300 rescuers dispatched.
- The ground units worked for the search and rescue in the city center and landslides in cooperation with other first responders, while the aerial units proved its usefulness through its activities to rescue the people stranded in the place which the extreme flood blocked the ground units from approaching.

The Kinugawa River burst its bank, flooding homes

Helicopter rescue teams winched people trapped to safety

Kumamoto Earthquake 2016

Outline of Damages

- ✓ A series of earthquakes, which started with the magnitude 6.5 quake on 14th April 2016, hit a wider area in Kyushu region with Kumamoto prefecture, the center of Kyushu, significantly damaged.
- The magnitude 7.3 quake, which occurred on 16th April, is the biggest one in the series, causing the huge damages in Kumamoto prefecture and Oita prefecture, east of Kumamoto.
- Many of the quakes occured at a depth of 10 km so shallow that the buildings around the epicenter were badly damaged.
- ✓ Causality; 50 and Injured; 2,459
- ✓ Completely damaged buildings; 8,198, Half damaged; 29,761 and Partially damaged ; 138,102

Search and Rescue by Fire Service Organization

- ✓ 376 people were rescued by the rescuers from the fire service organizations around 3,700 firefighters and about 9,200 volunteer fire corps, who made the efforts on site together with other emergency responders including the Self Defense Force, police and medical team.
- ✓ The ambulance service teams took 2,285 people to hospital.

Emergency Fire Response Team

- The Emergency Fire Response Team started its search and rescue activity just after the first earthquake hit mainly Kumamoto and the activity lasted for 14 days.
- ✓ Additional units joined in the search and rescue activities after another great impact happened due to the magnitude 7.3 quake on 16th April. The following day saw the largest number of the rescuers from fire service organizations including around 2,000 Emergency Fire Response Team members.
- The land units worked for the search and rescue in city centers and landslides in cooperation with other first responders, while the aerial units did the information collection on the disaster affected areas.
- ✓ In Kumamoto, 86 people were saved and 388 people taken to hospital by the Emergency Fire Response Team.

Kumamoto Earthquake 2016

III. Enhancing Disaster Management Capability against Possible Large Scale Disasters

Major Large Scale Earthquakes Forecasted to Occur in the Future

The 3rd fundamental Plan of Emergency Fire Response team

Increase the units to 6,000 by March 2019, as a main measure to combat the possible large scale disasters including the Nankai Trough Earthquake, based on the lessons learned through the Great East Japan Earthquake

The previous targets; 1st plan - 4,000 by March 2009, 2nd plan 4,500 - by March 2014

- ✓ Put the primary focus on the three core units firefighting, ambulance and rescue, to be increased.
- \checkmark Establish a special unit dedicated to firefighting at industrial complexes 12 units by 2018
- Create a new kind of unit with the high mobility to dash to the disaster hit area strengthen the initial response, such as the fact finding on site.
- ✓ Make the back up system more robust to prepare for a long-period search and rescue.
- Ensure the communication among the units and the headquarter on site, through forming 50 new units equipped with the telecommunication devices and the equipment against communication blackout

Stepping up Emergency Fire Response Team

- Operation Base Forming Vehicle and Large Air Tent to strengthen the logistic and back-up teams so that Emergency Fire Response Team can keep on their activities in a long period and also in wider areas.
- Operation Base Forming Vehicle is equipped with large air tents, lavatories, shower facilities and information and communication devices.

Operation Base Forming Vehicle

Large Air Tent

Stepping up Emergency Fire Response Team

 Small Amphibious Buggy and Tsunami/Large-Scale Water Disaster Countermeasure Vehicle enable the rescue teams to keep the high mobility in the flood, the tsunami-hit and the rubble area.

dry suit

Stepping up Emergency Fire Response Team

"Dragon Hyper Command Unit" - The Special Unit Dedicated to Firefighting at Petro Complex -

- ✓ Dedicated to extraordinary disaster response activities at energy and industrial infrastructures
- Can discharge the larger volume of water to farther and higher point for longer time than ordinary fire engine
- ✓ At present, four units formed in Ichihara, Yokkaichi, Shizuoka and Kobe, which have mega-sized industrial complexes in their city
- ✓ By 2018 to deploy 12 units in total to the areas close to large petrochemical complexes across the nation

Collaboration among Disaster Response Forces (in Emergency Fire Response Team Disaster Exercise)

Regional Fire Management and Disaster Prevention Structure

(as of April 1, 2016)

Volunteer Fire Fighter

Summary of Volunteer Fire Fighter

- Part-time local civil servants, acting under the slogan "Protection of our community by ourselves"
- > Having authority and duty to carry out fire defense activity in community
- > The initial response to disasters on the front line
- The number of volunteer firefighters used to be over one million, but is currently falling to below 0.9 million.

Searching people in landslide disaster (Hiroshima-City)

Supporting firefighter's rescue activity with power shovel (Oshima-Cho)

Current Status of Volunteer Fire Fighters

The law concerning step-up of community disaster prevention capability with Volunteer Fire Fighters playing the center role

Aim: for the safety of the residents, upgrading and enhancing the community disaster prevention capability with a focus on Volunteer Fire Fighters

1. Number of Volunteer Fire Fighters

2. Number of female members

3. Number of college student members

Enhancement of the Capacity to Handle NBC Disasters

300 units

by 2018

To increase Special Disaster Response Unit of Emergency Fire Response Team

The unit to rescue people from NBC disasters with chemical protection suits and specially customized vehicles which contain the detector

284 units

Tools and equipment to combat NBC disasters deployed to rescue teams in fire service organizations

Equipment and Tools

- Portable biological agent detector
- Portable chemical agent detector

- Positive pressure chemical protective suit
- ✓ Decontamination shower

<u>Vehicle</u>

 Special disaster response vehicle (NBC disaster response vehicle)

 ✓ Large Decontamination System Vehicle

FDMA's Effort in Countermeasures to NBC Terrorism

To strengthen the countermeasure by the fire service organization to NBC terrorism,

especially to ensure the safety for the 2020 Tokyo Olympic and Paralympic.

- ✓ To establish a special arrangement for fire service organization's preparedness around the venues – calling out the responders based in the cities other than Tokyo
- Vehicles and equipment to enhance security for the games decontamination detecting instruments
- ✓ Capacity development for special force in NBC disaster

Large Decontamination System Vehicle ↓

- ✓ To educate the fire fighters and the staff at the venues in NBC disasters
- ✓ Civil protection exercise jointly by the central government and the local authorities

Firefighter's Preparedness and Exercise for the Japan and S. Korea FIFA world cup 2002

Thank you very much for listening.

