Establishment of "Tokyowater Rescue"



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Conditions of dispatch rescue in a disaster

1. Response to disasters

Waterworks utilities in Japan have been dispatching support as much as possible to respond to support disaster-affected waterworks entities through the Japan Water Works Association (JWWA).



Figure 1. Flow from disaster to rescue request (Mutual rescue system in the JWWA)

Table 1. Overview of disaster dispatch records of the Tokyo Waterworks

1	Water Service Suspension Scale	Dispatch Scale		
Disaster	(Disaster Scale)	Emergency Water Supply	Emergency Restoration	
Great Hanshin Earthquake	Up to about 1,270,000 households (Magnitude 7.3)	261	852	
Chuetsu Earthquakes	Up to about 130,000 households (Magnitude 6.8)	48	36	
Chuetsu Offshore Earthquake	Up to about 60,000 households (Magnitude 6.8)	-	76	
Great East Japan Earthquake	Up to about 2,570,000 households (Magnitude 9.0)	61	104	
Typhoon Wipha	Up to about 3,000 households (824 mm of rainfall in 24 hours)	21	-	
Kanto/Tohoku Torrential Rain	Up to about 30,000 households (551mm of rainfall in 24 hours)	6	19	
Kumamoto Earthquakes	Up to about 440,000 households (Main Shock Magnitude 7.3)	-	111	
	Chuetsu Earthquakes Chuetsu Offshore Earthquake Great East Japan Earthquake Typhoon Wipha Kanto/Tohoku Torrential Rain	Great Hateshin Earthquake Open a March (17,17,18) of his methods (Magninoles 7.3) Open about 15,000 of his Magninoles (17,18) of his methods (Magninoles 17,18) of his methods (Magninoles 6.8) Chaestra Ciffshore Earthquake Up to about 6,000 his methods (Magninoles 6.8) Oreat Earth (Japan Earthquake Up to about 6,000 his methods (Magninoles 6.8) Typhone Wight Up to about 7,000 his methods (Magninoles 6.8) Typhone Wight Up to about 7,000 his methods (Magninoles 6.8) Up to about 7,000 his methods (Magninoles 6.8) Up to about 7,000 his methods (Magninoles 6.8) Open to about 7,000 h	Cheerton Estimated Communication Communicati	

2. Challenges in disaster-area dispatch

After the Kun amoto Earthquake, emergency dispatch requests came on holidays. This raises such issues as how fast a rescue system can be established after a request is received, and whether a rescue system can be secured for a certain period of time



Figure 2. Emergency restoration activities after the Kumamoto Earthquake



Overview of the Tokyo Waterworks Disaster Rescue Team

In February, 2017, the Tokyo Waterworks established "Tokyowater Rescue: Tokyo Waterworks Disaster Rescue Team" so as to be able to dispatch rescue teams swiftly and smoothly when it receives rescue requests in the event of a disaster. The team was established with a combination of a "duty system" and a "registration system" (See details below), securing an immediate response system fro rescue requests at all times, which is also capable of continued dispatch for a certain period of time according to conditions at the disaster site. The system for rescue dispatch includes an early coordination team that can coordinate with the scale of rescue dispatch with an understanding of the disaster conditions, as well as emergency water supply and emergency restoration in cooperation with related entities.

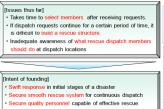


Figure 4. Intent of founding



Figure 5. Announcement by the Governor of Tokyo when Tokyowater Rescue was established (February 3rd, 2017)

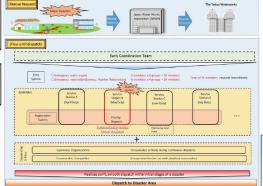


Figure 6. Image of disaster area dispatch after establishment

[Main Roles of Early Coordination Team] Establish a command structure in rescue activities · Coordinate communication between disaster affected waterworks entities and rescue waterworks entities etc [Standard Structure of Early Coordination Team] aptain · · · Department manager level (clerical/technical according to on-site condition eputy Captain · · · Section manager level (same as above) Coordination Assistant (2 member Waterworks Emergency Tea Personnel (2), Records Personnel Figure 7. Overview of Early Coordination Tean Tokyo Waterworks Contact at start of every ve about this duty system

Supervisory Organizations

Construction Companies If the rescue request includes are contacted for response based on agreements with 4 pipe construction firms

Figure 8. Collaboration with involved entities

"Duty system" and "Registration system

In order to select members faster for rescue dispatch, this system secures a 10 member emergency water supply team consisting of 5 groups of 2 members each (in 5 water supply trucks) to respond to water service suspension and a 24 member emergency restoration team (survey, pipeline restoration) consisting of 4 groups of 6 members, for an initial response team with a total of 34 members. Duty is conducted by month at related service stations.

[Features]

- Service stations are selected by month in advance
 Dispatch members are selected in order from duty members at duty service stations for the
- 2 fields: emergency water supply and emergency restoration (survey, pipeline restoration)

	April	May	June	July	Au	gust	September	October	November	December	January	February	March
XX Service Station		(12nenters)					(12members) Dispetched as Team	(2)			(12members)		
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*Construction companies in the jurisdiction of duty service stations are also on standby Figure 9. Image of initial dispatch team duty table ("Emergency Restoration (Survey, Pipeline Restoration"))

2. Registration System

This system recruits Tokyo Waterworks staff who are willing to actively contribute to rescue dispatch, and registers staff who have received training to get the knowledge necessary when they are dispatched. By securing registrants, it is possible to speed up selection of dispatch team members and improve the level of dispatched members.

- Staff registered with the "registration system" periodically attend to prepare them for dispatch work and emergency water supply, making them central to dispatch work. The following table shows the 7 registration fields.

Table 2. Overview of Registration Fields

Regis	tration Category	Occupation	Registration Qualifications				
Emerge	ency water supply	Clerical	None				
	gency restoration Pipeline Restoration)	Civil Engineering, Technical	At least 1 year experience in Tokyo Waterworks				
	gency restoration arge Pipelines)	Civil Engineering	At least 1 year experience in Tokyo Waterworks and experience designing or inspecting construction of pipes of at least ϕ 400.				
			At least 1 year experience in Tokyo Waterworks Excludes staff engaged in operation management work.				
	gency restoration (Equipment)	Mechanical/Electrical Engineering, Technical	At least 1 year experience in Tokyo Waterworks Excludes staff engaged in operation management work.				
W	ater Quality	Environmental Inspection	At least 1 year experience in Tokyo Waterworks				
HQ	Assistant Captain	Civil Engineering (Deputy Section Chief Level)	Ability to coordinate support activities at dispatch locations.				
Personnel	Contact Accounting Personnel	Clerical	Ability to manage funding and ledgers at dispatch locations.				

Table 3. Overview of Tokyo Waterworks Registrants (At of the end of 2017)

Field	Members	Field	Members	Field	Members	Field	Members
Emergency water supply	206	Emergency restoration (Large Pipelines)	70	Emergency restoration (Equipment)		HQ Personnel (Assistant Captain)	39
Emergency restoration (Surveys, Pipeline Restoration)	540	Emergency restoration (Facilities)	50	Water Quality	45	HQ Personnel (Personnel)	30

Total Registrants: 1.126 Managers and Waterworks
Emergency Team Members: 224 In total, 1,350 members in the immediate response system

Efforts to improve effectiveness of dispatches

- training for all
- registrants in a certain period

2. Practical Training
On-site training

emergency water supply

Figure 11. Emergency water supply practical training

· Actively participate in disaster prevention training with other entities , for improving effectiveness of rescue dispatch in the event of a disaster







ncy Water Supply) ncy Water Supply) (Emergency Restoration) Figure 12, 13. Dispatch activities training

Future Development



inspiring change