Ryo Hakoda (City of Yokohama, Japan) YOKOHAMA

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damage to sewerage facilities severely affects not only the citizens, in using the toilets, but also the transportation systems. Yokohama developed the Sewerage Business Continuity Plan (BCP) to enable safe and efficient recovery from disaster in 2013.

## Plan for Restoration of Sewer Pipelines Damaged by Earthquakes in Yokohama

### Key words: BCP, earthquake, agreement with private companies

#### . Basic issues

#### **Priorities in the Sewerage BCP**

**Ensure the transportation functions** 

(First priority is protecting human life)

Ensure the availability of toilet functions in evacuation shelters

#### **Eliminate sewage overflow**

To ensure that operations are launched speedily and to facilitate a disaster response outside of working hours, a system of rolesharing has been put in place whereby each staff member is assigned to one of the following three units on the basis of experience and location of residence

#### **Role-sharing of staff**

Survey and restoration of sewer pipeline	eadquarters	The overall sewerage system
related to the evacuation shelters	nelter Unit	Survey and restoration of sewer pipelines related to the evacuation shelters
	ırvey Unit	Surveying sewer pipelines throughout the city during the primary survey period and restoration work

#### 3. Post-quake response

With regard to post-quake survey and restoration work, the purpose, systems, work methods, reporting and contact methods, and other aspects have been planned in as much detail as possible. Agreements have been made with 10 private companies and a system set up for surveys to be set in motion automatically, arranged according to a time line.

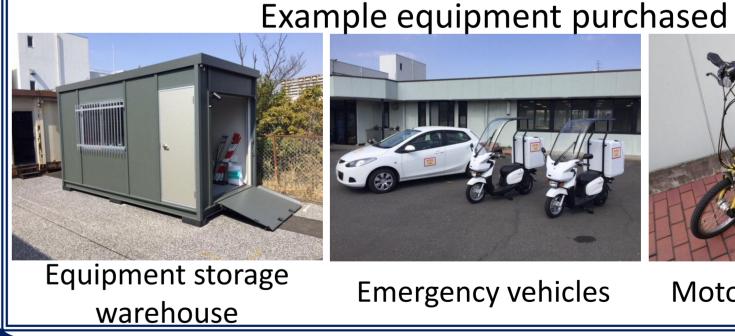
	Survey Classification and Summary
Emergency inspection	Ascertain the damage to transportation systems
Emergency survey	Confirm availability of toilets in evacuation shelters
Zero-order survey	Ascertain the damage over the city for the next stage of survey
Primary survey	Identify second stage survey sites Determine the need for emergency restoration work

## 4. Pre-quake measures

Pre-quake m	ea
Map exercise	Ro

**On-site** training

# Map exercise



#### **5.** Conclusion

These efforts have been organized into a detailed timeline of action before and after an earthquake and compiled into a manual. Sewer pipelines are important resources that are directly linked to ensuring the toilet functions and the public health in case of disaster. It is necessary for city officials and related organizations to work together to overcome various challenges and strengthen the crisis management system so that even in case of disaster we can continue to provide the sewerage services to the citizens.



BCP assumptions are based on just one scenario. Staff must respond flexibly to the situation.

### asures (education and training) are essential

#### **Education and Training**

Role-playing in information gathering and communication and contact during disaster

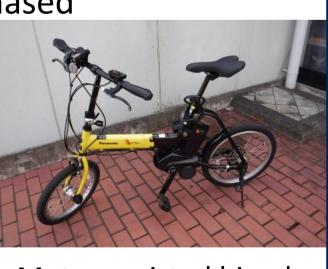
Inspections involving the opening of manholes for visual inspection





**On-site training** 

Post-quake response have been identified to improve the BCP's effectiveness. We will continue to improve the plan through measures such as rectifying gaps in materials and equipment.



Motor-assisted bicycle