

Concept of Waterworks in Disaster Relief based on the 2016 Kumamoto Earthquake

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1. Introduction

(1) Occurrence of the 2016 Kumamoto Earthquake

	Foreshock	Main shock
Date	2016.4.14_21:26	2016.4.16_01:25
Scale	Magnitude 6.5	Magnitude 7.3
Deaths	49 people	
Injuries	347 people	



Collapsed stone walls and other structures of Kumamoto Castle



Crushed 1st floor of an apartment building

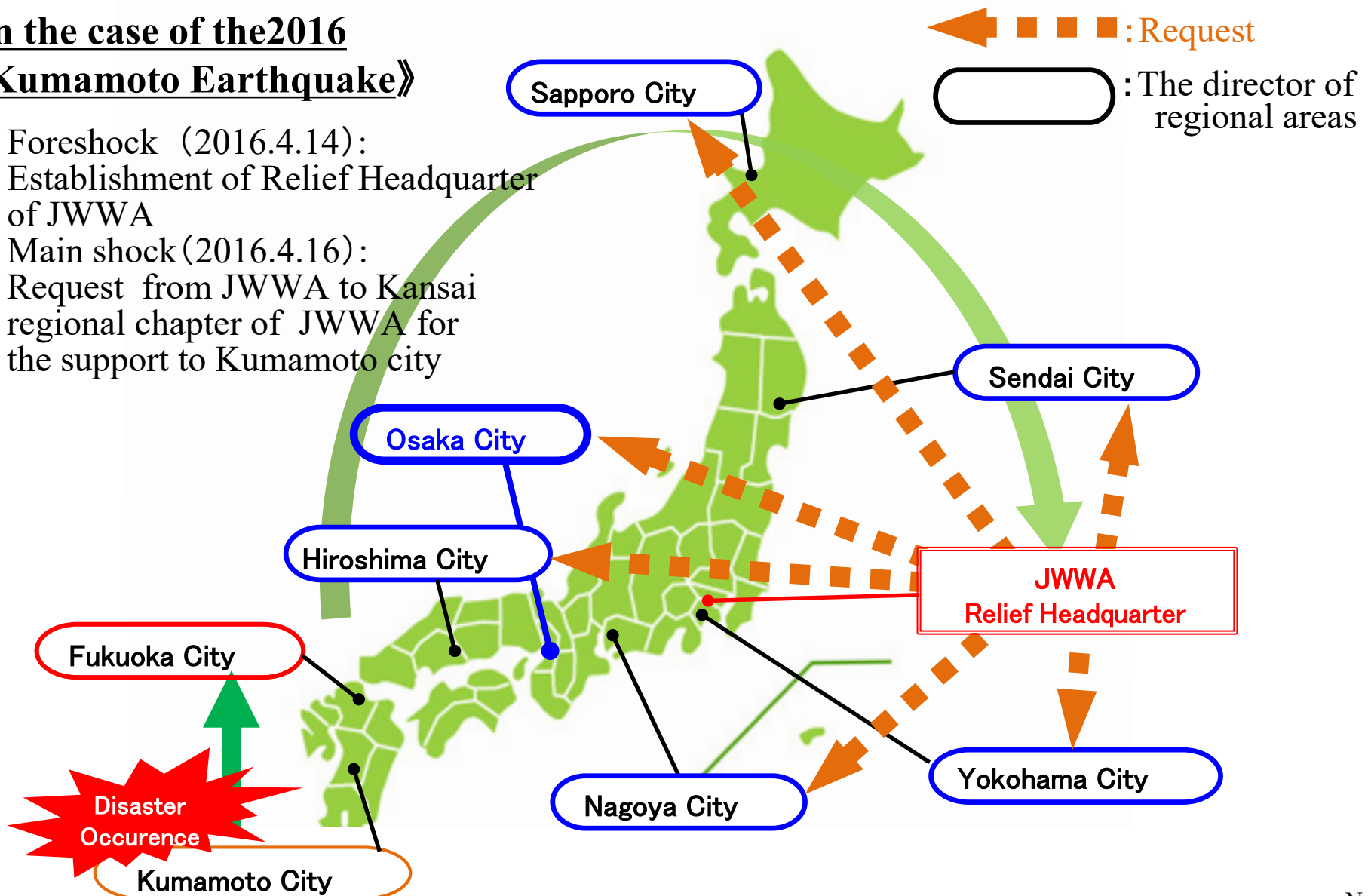
1. Introduction

(2) Background of the dispatch of support team to the Kumamoto city

《In the case of the 2016

Kumamoto Earthquake》

- Foreshock (2016.4.14):
Establishment of Relief Headquarter of JWWA
- Main shock (2016.4.16):
Request from JWWA to Kansai regional chapter of JWWA for the support to Kumamoto city



2. Outline of supporter activities in Kumamoto city

(1) Emergency Water Supply Team

➤ Performance of emergency water supply team of water suppliers across the country

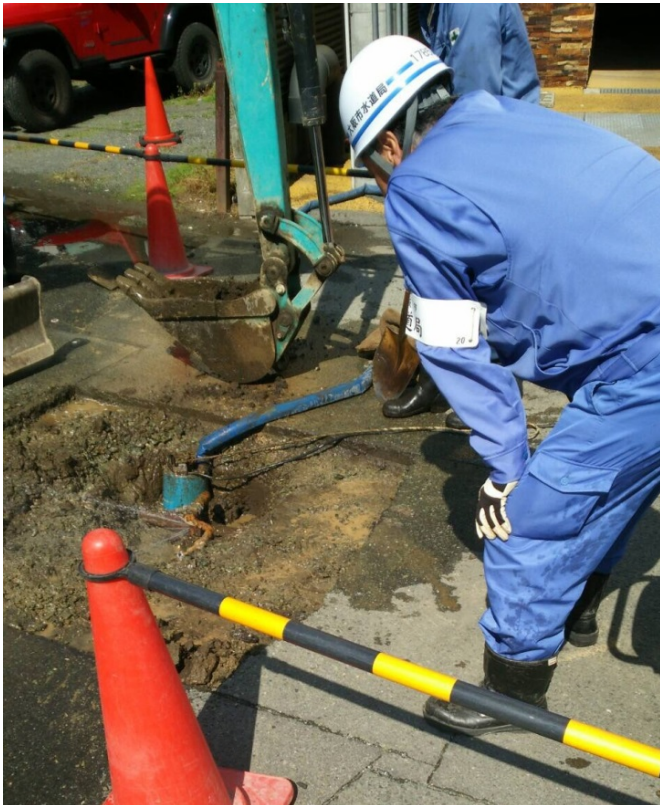


Water suspension		Maximum : 326,000 (all households)
Dispatched period		15th April 2016 to 6th May 2016
Emergency water supply point		Maximum: 33 places
Supporter team (cumulative total)		
	Water supplier	19
	Personnel	4,286 (102)
	Water supply truck	1,027 (32)

() : Performance of Osaka city

(2) Emergency Water Restoration Team

- **Role of emergency water restoration team**
 - Leak detection and Leak restoration
- **Performance of emergency water restoration team of water suppliers across the country**



Dispatched period		17th April 2016 to 17th May 2016
Leak restoration point (distribution main)		263
Supporter team (cumulative total): Leak detection		
	Water supplier	19
	Personnel	313 (61)
Supporter team (cumulative total): Leak restoration		
	Water supplier	54
	Personnel	5,216 (23)

() : Performance of Osaka city

(3) On-site Headquarter of Osaka municipal waterworks bureau

➤ **Role of on-site headquarter as logistic support of emergency water supply**

- Attending the meeting every morning
 - Collection of the progress of emergency water supply activities
 - Gathering necessary information for implementing activities
- Development of the development of schedule of water supply trucks
- Taking initiative of other support in Higashi district

(3) On-site Headquarter of Osaka municipal waterworks bureau

➤ **Role of on-site headquarter as logistic support of emergency water restoration**

- Attending the meeting every morning as the director of Kansai regional branch
 - Collection of the progress of emergency water restoration activities
 - Gathering necessary information for implementing activities
- Management of leak detection and leak restoration points by describing the reports to proceed with activities in the assigned areas

3. Effort based on the experience of the 2016 Kumamoto earthquake

Developing of “Guideline of Supporter dispatch”

- Hearing of support team members
- Creating of practical guideline based on the opinion and knowledge of on-site experience



the points to be improved as below;

➤ **Support system**

- Clarification of flow from occurrence of disaster to deciding support within in-house organization

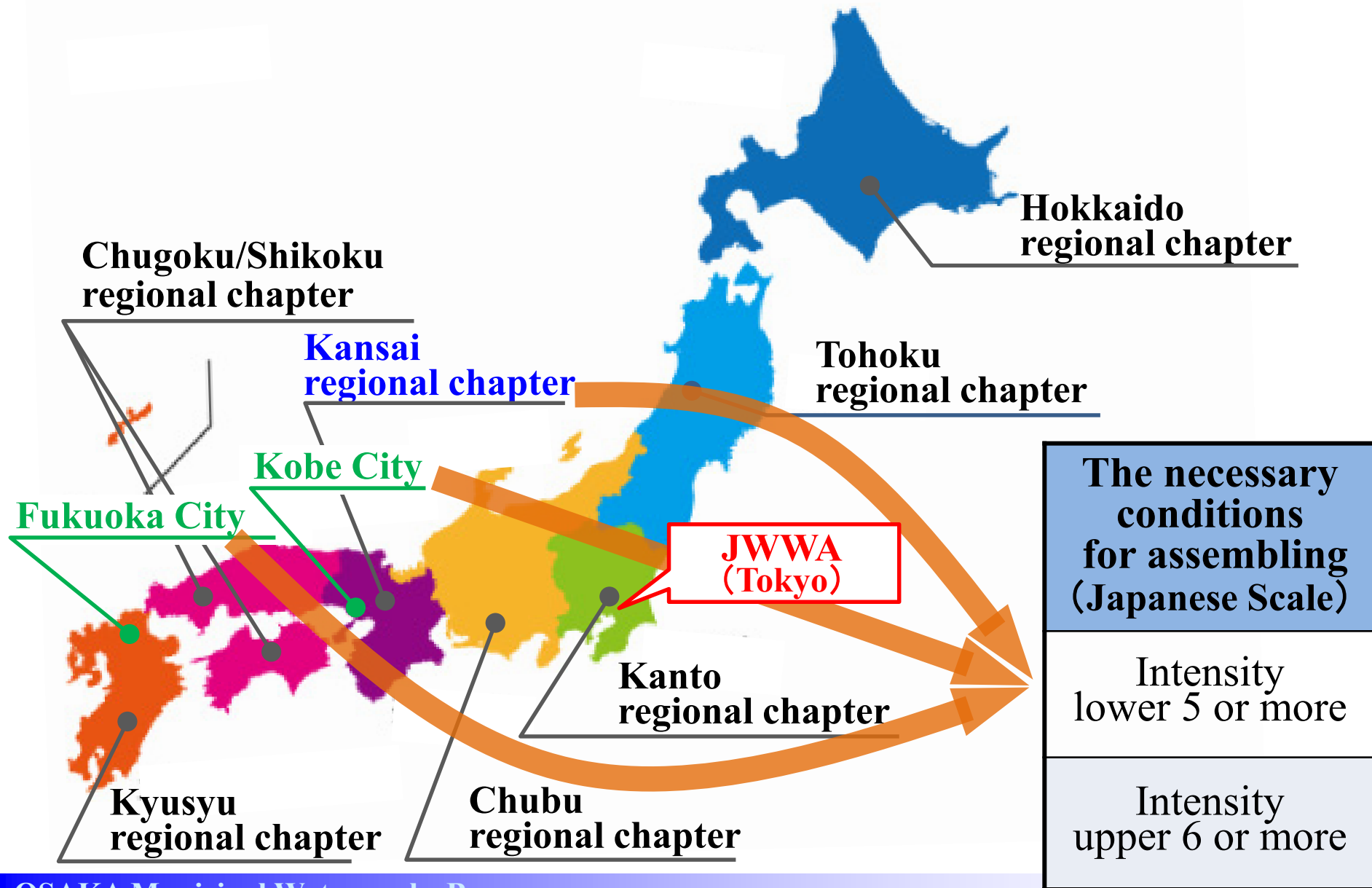
➤ **Document**

- Report format for sharing information within the site

➤ **Preparation including equipment**

- Itemizing the equipment to be brought with supporter dispatch and staff in charge of procurement for those items

《Necessary conditions for assembling(holiday and off-duty)》



《Establishment of Aid Headquarter》

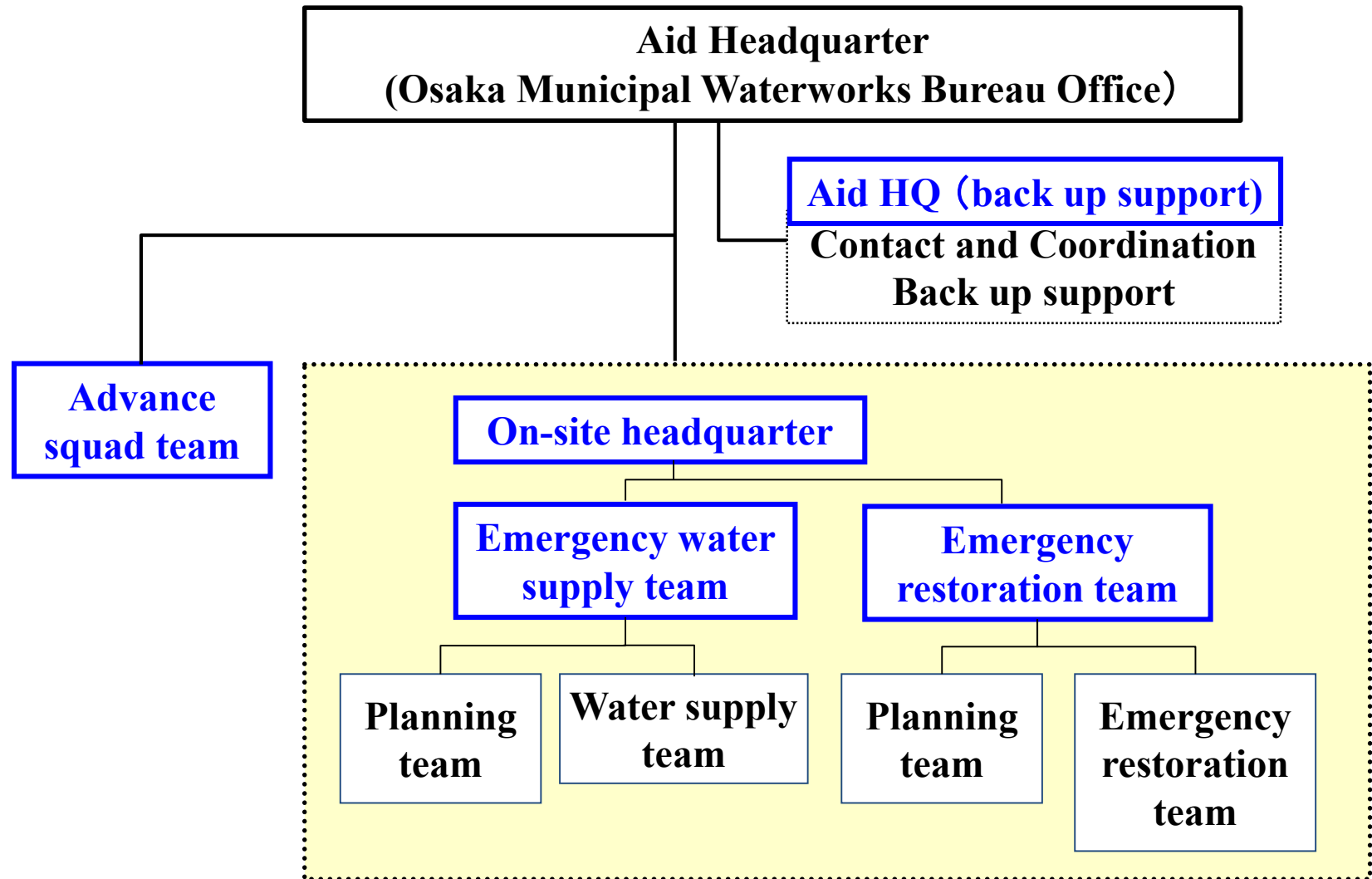
- In-house organization to determine the system of dispatching support
- Establishment of constituent members including the director of Waterworks Bureau, as chief of Aid headquarter

《Clarification of the responsibility of each related section》

In charge of procurement	Work description
ICT Promotion Department	<ul style="list-style-type: none"> ○ Setting of information sharing tools (e.g. Google account) ○ Arrangement Personal Digital Assistance (Portable PC, Smart phone)
Waterworks Maintenance Center	<ul style="list-style-type: none"> ○ Arrangement of vehicles to dispatch (Chief car, Emergency water supply truck) ○ Arrangement of emergency water supply material (Emergency water supply bag, temporary water tap) ○ Arrangement of emergency restoration materials (Leak detector, leak sound detection bar)

(excerpts from table in charge of back up support)

《Organizing the basic framework of support team》



«Organizing the rule of dispatch rotation of support team»

Supporter dispatch system for the 2016 Kumamoto Earthquake (Change all members)

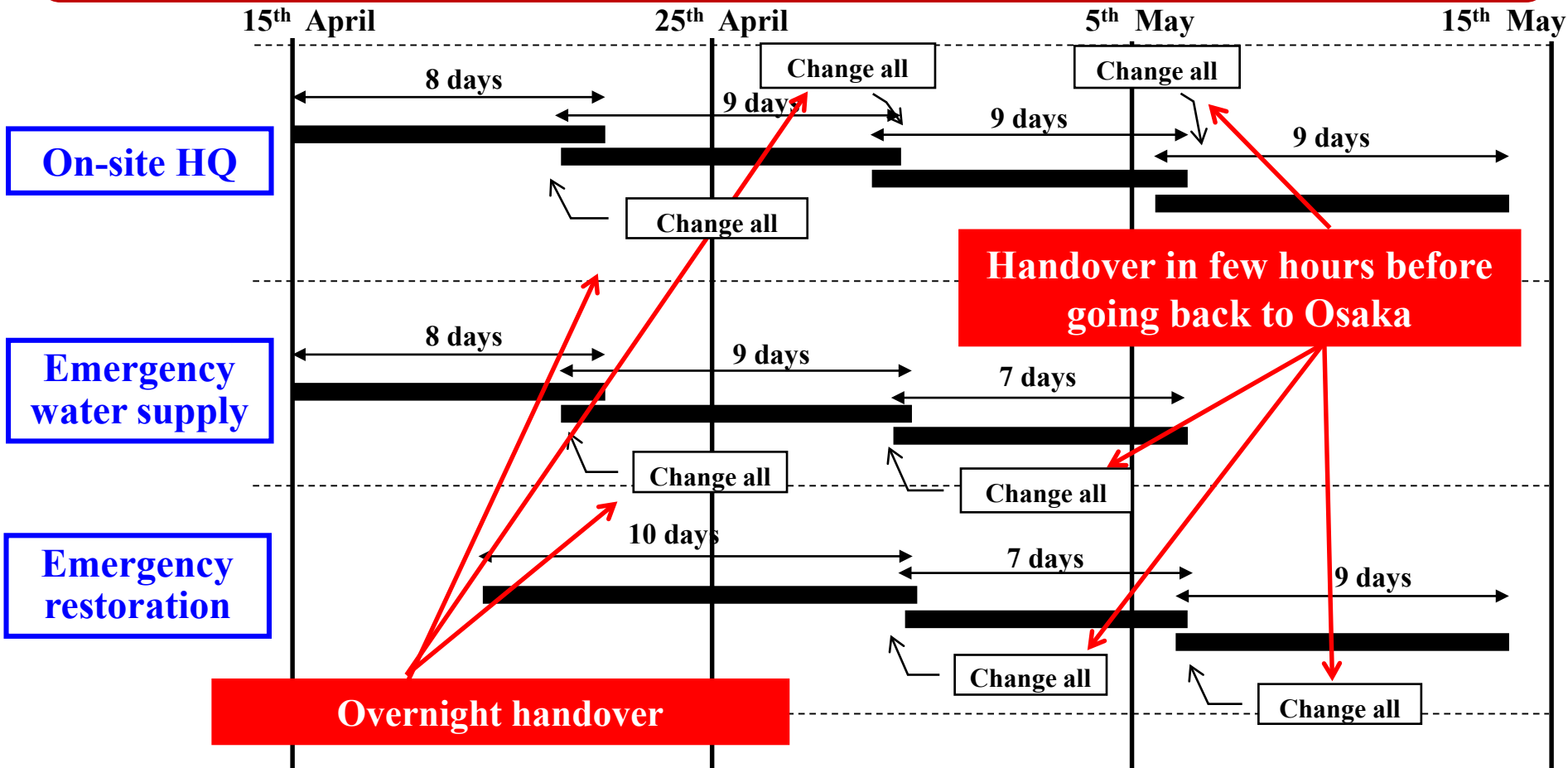
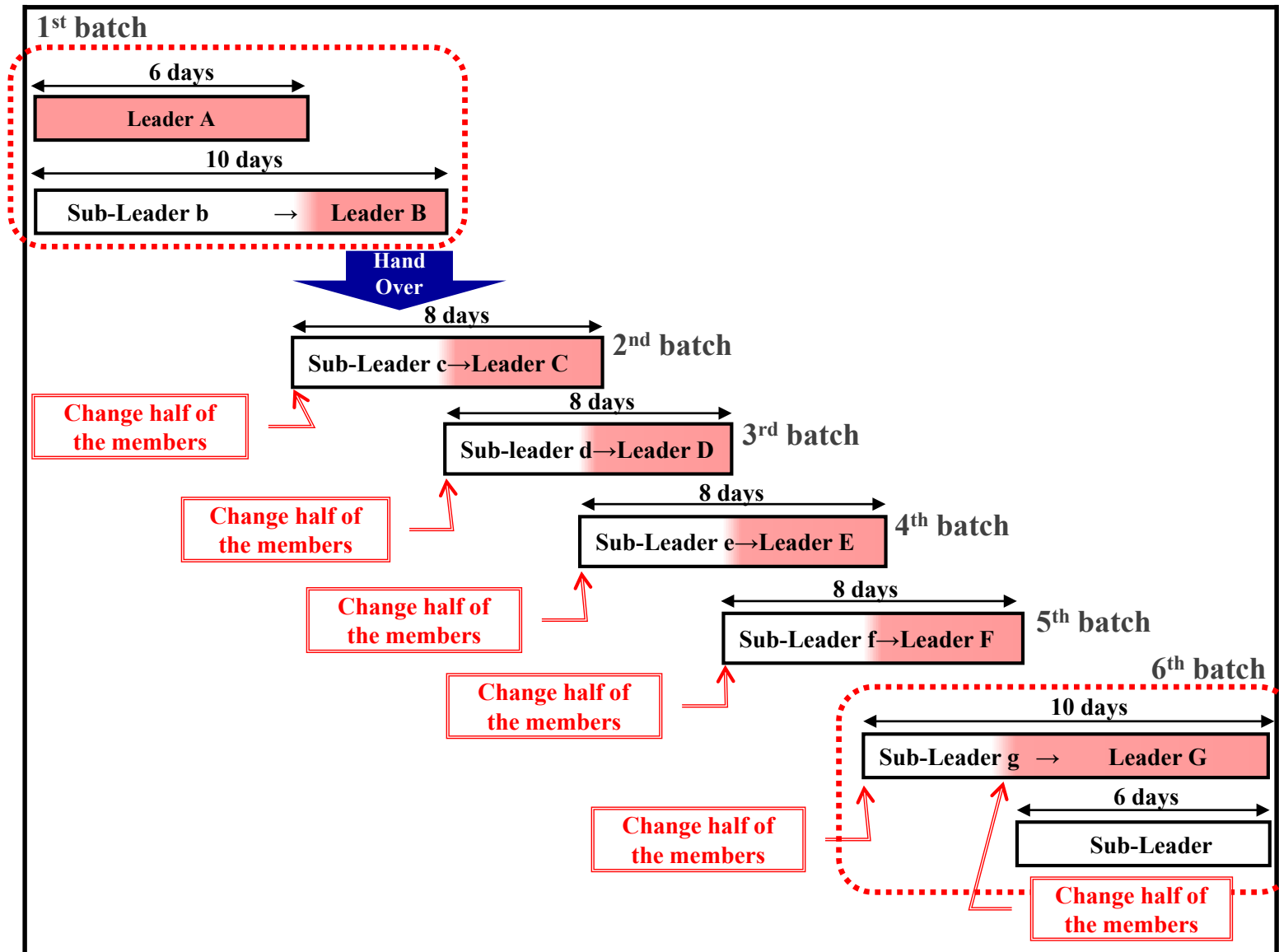


Image of changing “half of the team members”



4. Conclusion

《Construction of Accepting Support System》

- The importance of accepting support is now being recognized in case that Osaka City suffers from disaster through support dispatch.
- We are working now on review of our Business Continuity Plan (BCP) to enrich accepting support plan.



Contents of activities

- **Re-evaluation of the damage expected to the existing scenario disaster to construct the accepting support system**
- **Construction of Accepting Support System (Preparation of accepting support team)**
 - Message for support request
 - Facility for accepting support
 - Preparation of smooth emergency work activities after accepting
 - Record of support progress

Thank you for your kind attention!



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