



2017 CTWWA/WRF/JWWA

Water system seismic conference

# Dispatch of support staff to small waterworks entity

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# OUTLINE

1. Introduction
2. The damage of Shichigahama  
occurred by the Great East Japan Earthquake of 2011
3. Dispatch of support staff to Shichigahama
4. Model project governed by MHLW
5. Conclusion



# 1. Introduction

*What is effective dispatch to small waterworks entity in major disaster?*

Consideration based on

*the case and the interview survey*

*Case* : Niigata and Shichigahama, after the GEJE of 2011

*Interview survey*: with several affected waterworks entity, conducted in July 2017



## 2.The damage on Shichigahama by the GEJE

### Characteristics of the GEJE

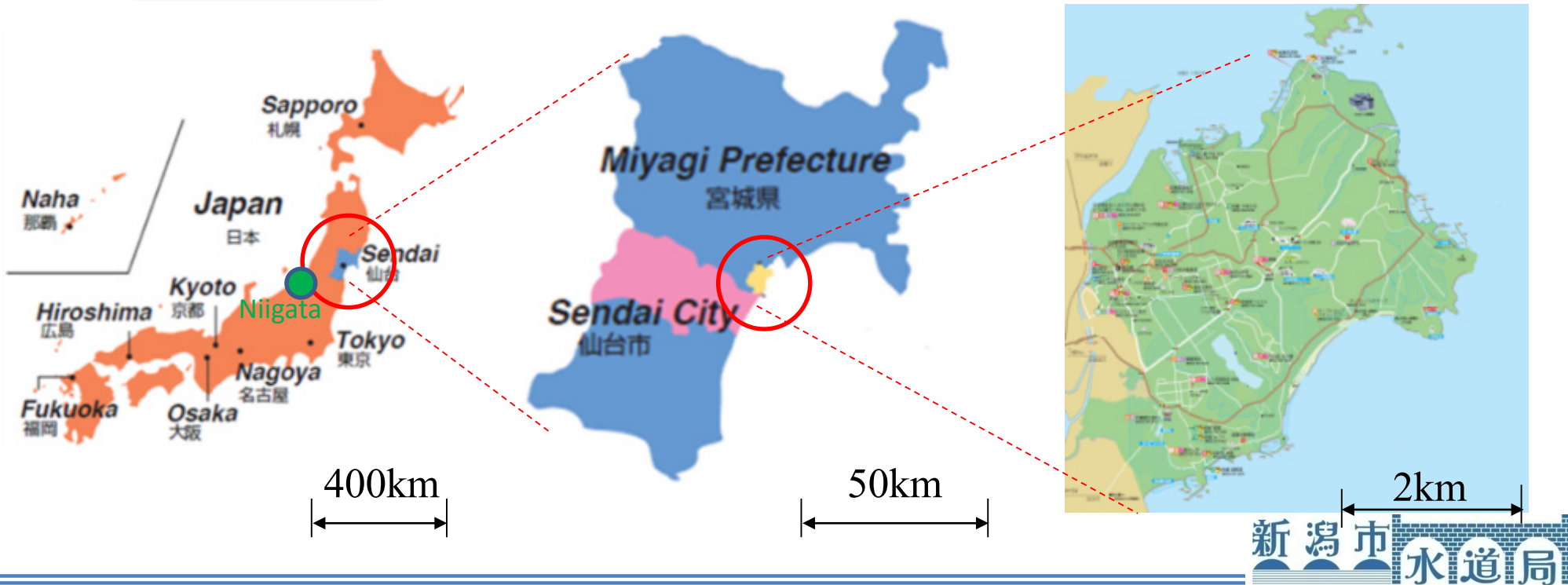
Date and time	2011/3/11 14:46
Maximum seismic intensity	7 (JMA* Seismic Intensity) at the Miyagi prefecture north
Moment magnitude	9.0 (moment magnitude)
Hypocenter	38'6'12N 142'51'36E 24km deep
Epicenter	offshore from Sanriku
Maximum tsunami height	15 m high

⇒ *extensive damage by the tsunami*



# 2.The damage on Shichigahama by the GEJE Specification of Shichigahama

<b>Location</b>	East of Sendai, center of the Miyagi prefecture
<b>Geography</b>	Peninsula; the center of the town is elevated and the topography slopes downward to the coast.
<b>Population</b>	Approximately 20,000 (in 2011)





## 2. The damage on Shichigahama by the GEJE

### The damage of Shichigahama



30% of the town was flooded

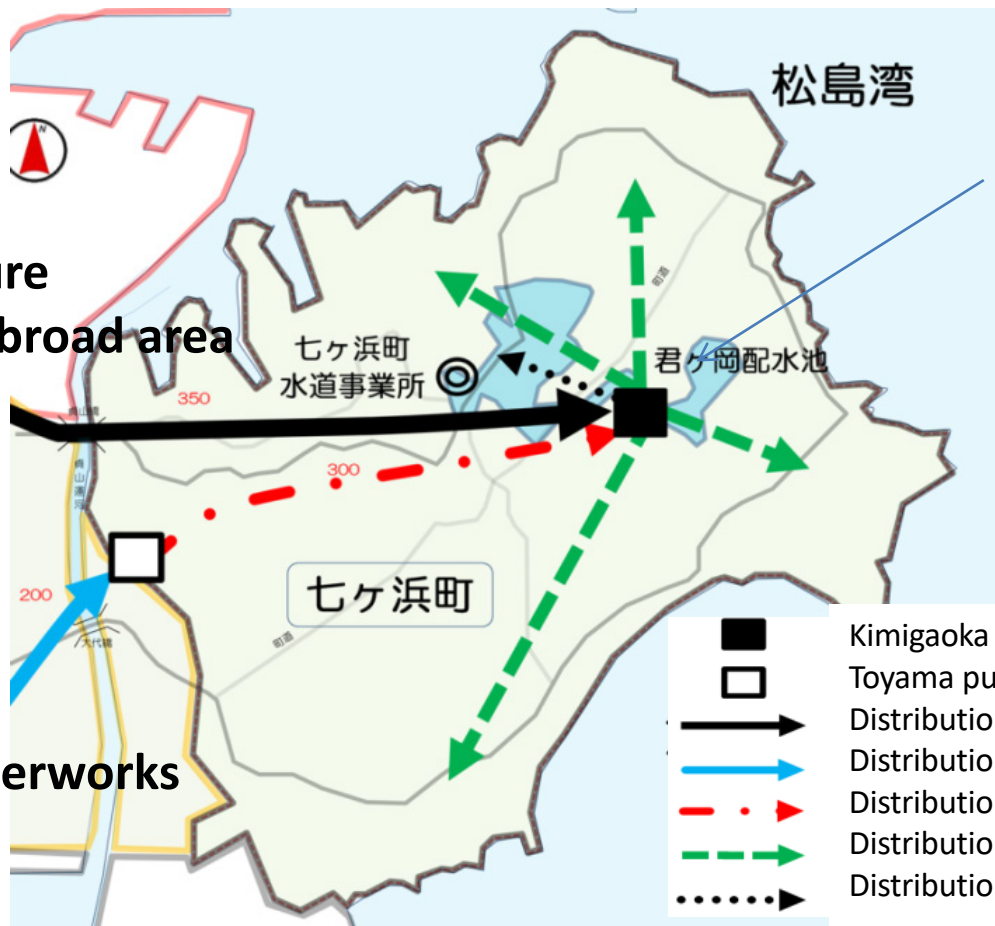


# 2.The damage on Shichigahama by the GEJE

## Distribution System of Shichigahama

Miyagi Prefecture  
Sennan·Senen broad area  
waterworks

Sendai City Waterworks



Kimigaoka  
Distribution Tank  
Capacity:8,500m3



# 2.The damage on Shichigahama by the GEJE

## Damage of waterworks in Shichigahama



Service pipes with houses



Pipe bridge, completely broken air valve

There is no exact statistics, but

Earthquake damage : insignificant damage

Tsunami damage: critical damage (limited area)

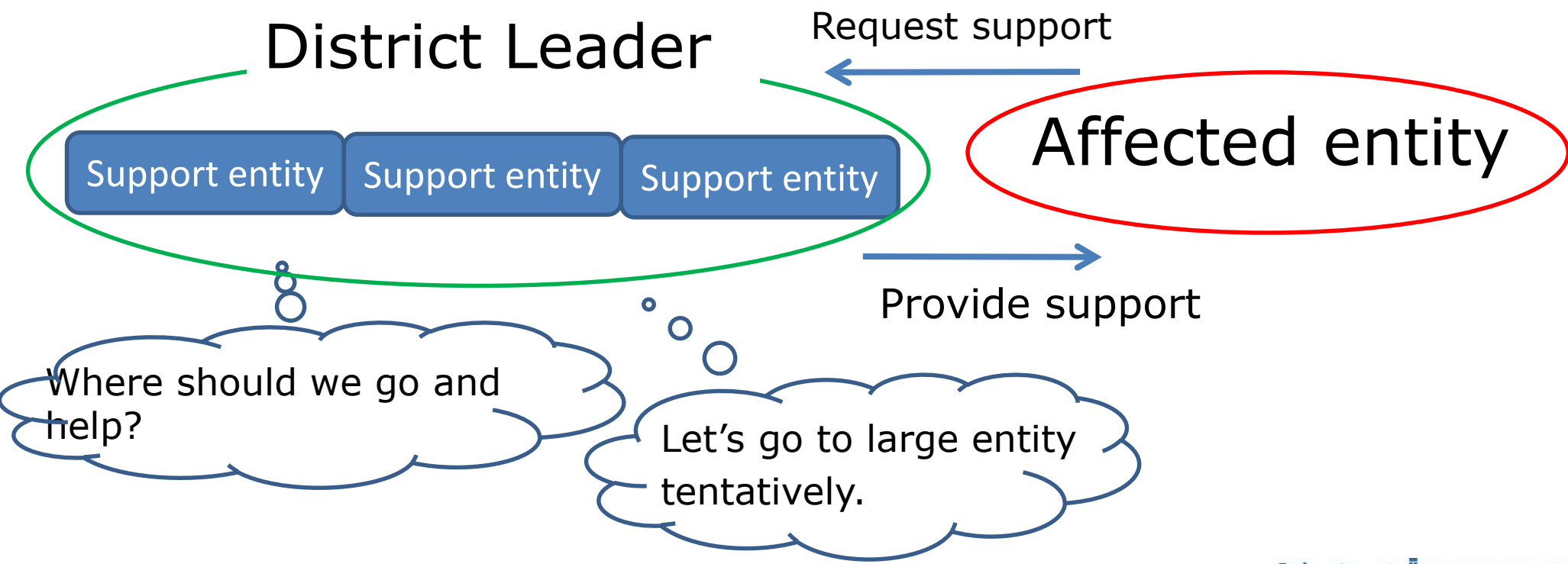




# 3. Dispatch of support staff to Shichigahama

## How and Why (or Justification)

### Conventional way based on the rule of JWWA





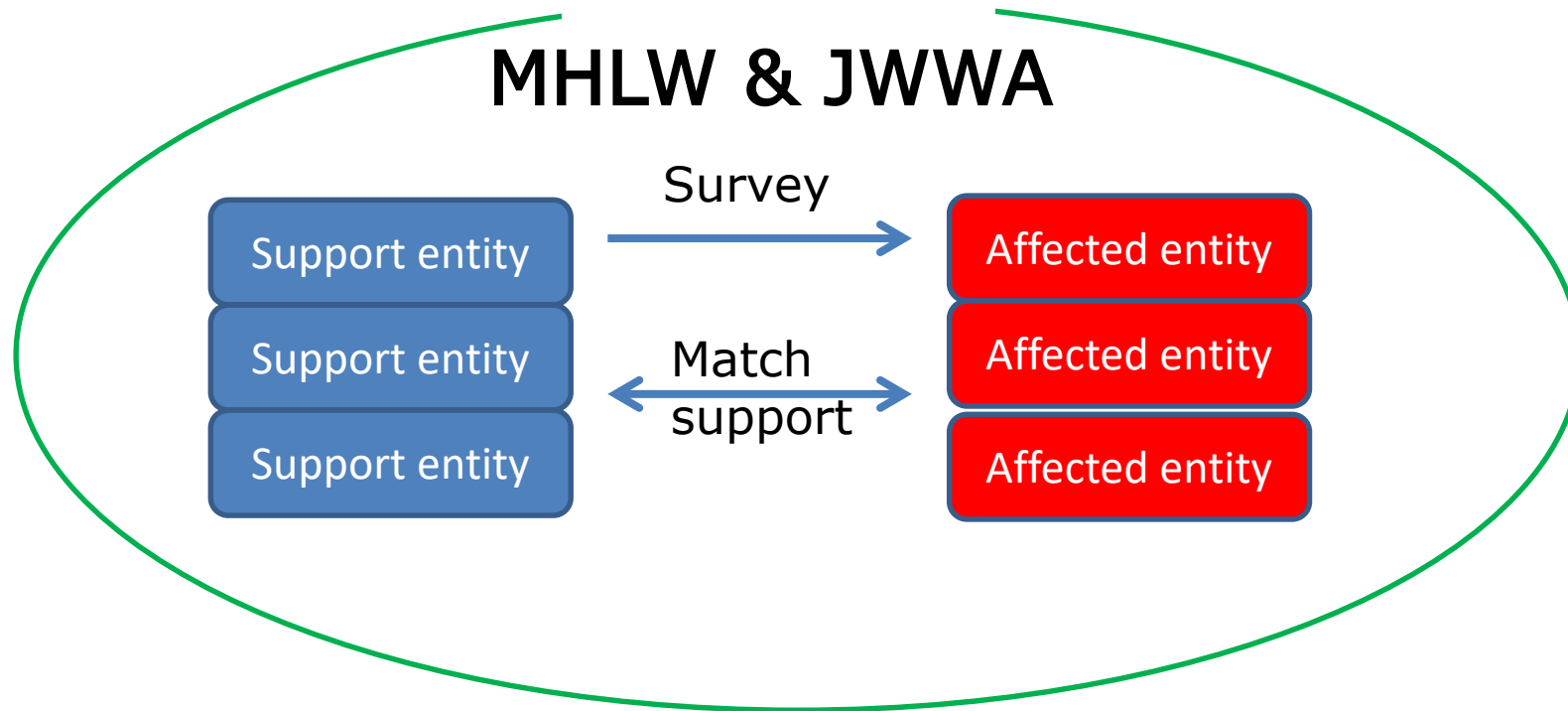
# 3. Dispatch of support staff to Shichigahama

## How and Why (or Justification)

*GEJE way*

*The council*

**MHLW & JWVA**





# 3. Dispatch of support staff to Shichigahama

## The profile of dispatched staff

Age: 40

Profession: Civil engineer

Post: Technical staff chief

Career:

waterworks pipeline engineer for 17 years

sewerage for 3 years



⇒ He was an ace in his section



# 3. Dispatch of support staff to Shichigahama

Works the dispatched staff handled



3 types of works

1. support routine work
2. disaster recovery work
3. *model project*

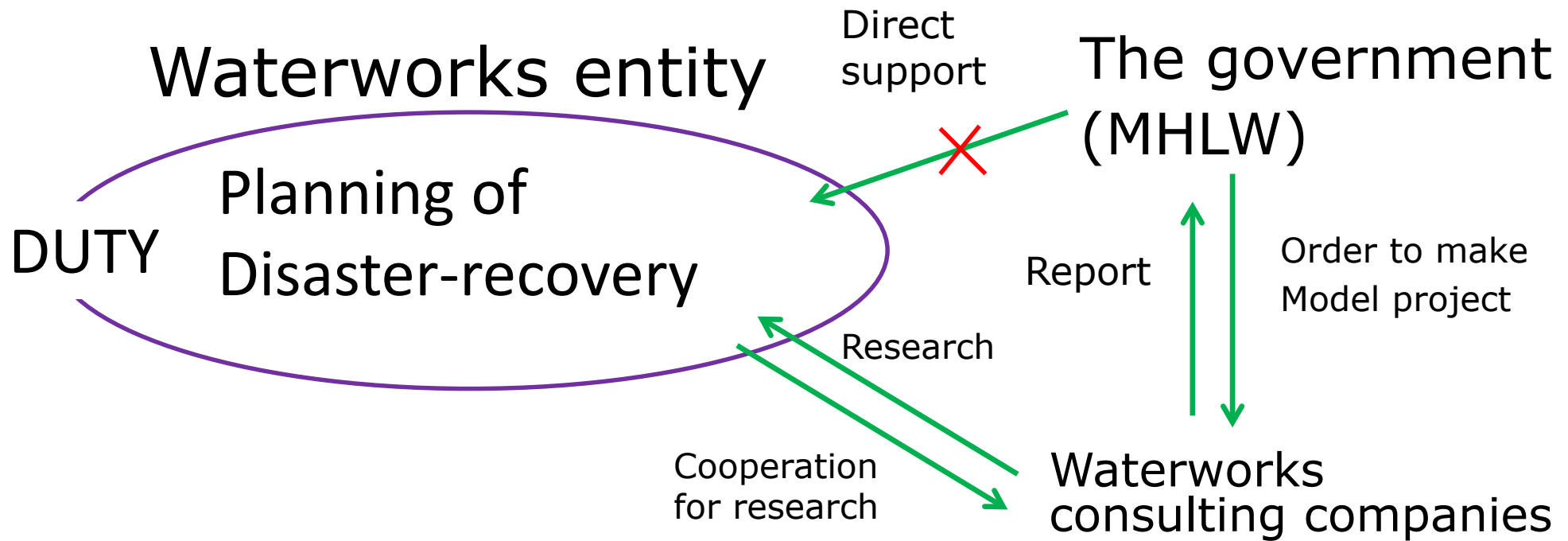
⇒ solving of human resource shortage

⇒ the most time-consuming work was paper work for the subsidy



# 4. Model project by MHLW

## New support scheme by MHLW





# 5. Conclusion

Our dispatch of support staff solved the shortage of human resource.

Therefore, Shichigahama could recover from the disaster smoothly compared to other entity.

2011



2013



2017





## 5. Conclusion

Support needs on small waterworks entity

→any human resources were acceptable, but much better is;

*Long-term dispatch without replacement*



## 5. Conclusion

The characteristic waterworks recovery of a waterworks entity hit by the tsunami

→ Urban plan should be changing often

→ Several reconstruction project at same place

*Desirable: Entity who takes initiative and controls schedules of projects*





# At the end

Thank you for your kind attention!

If you have any question, please contact to

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