

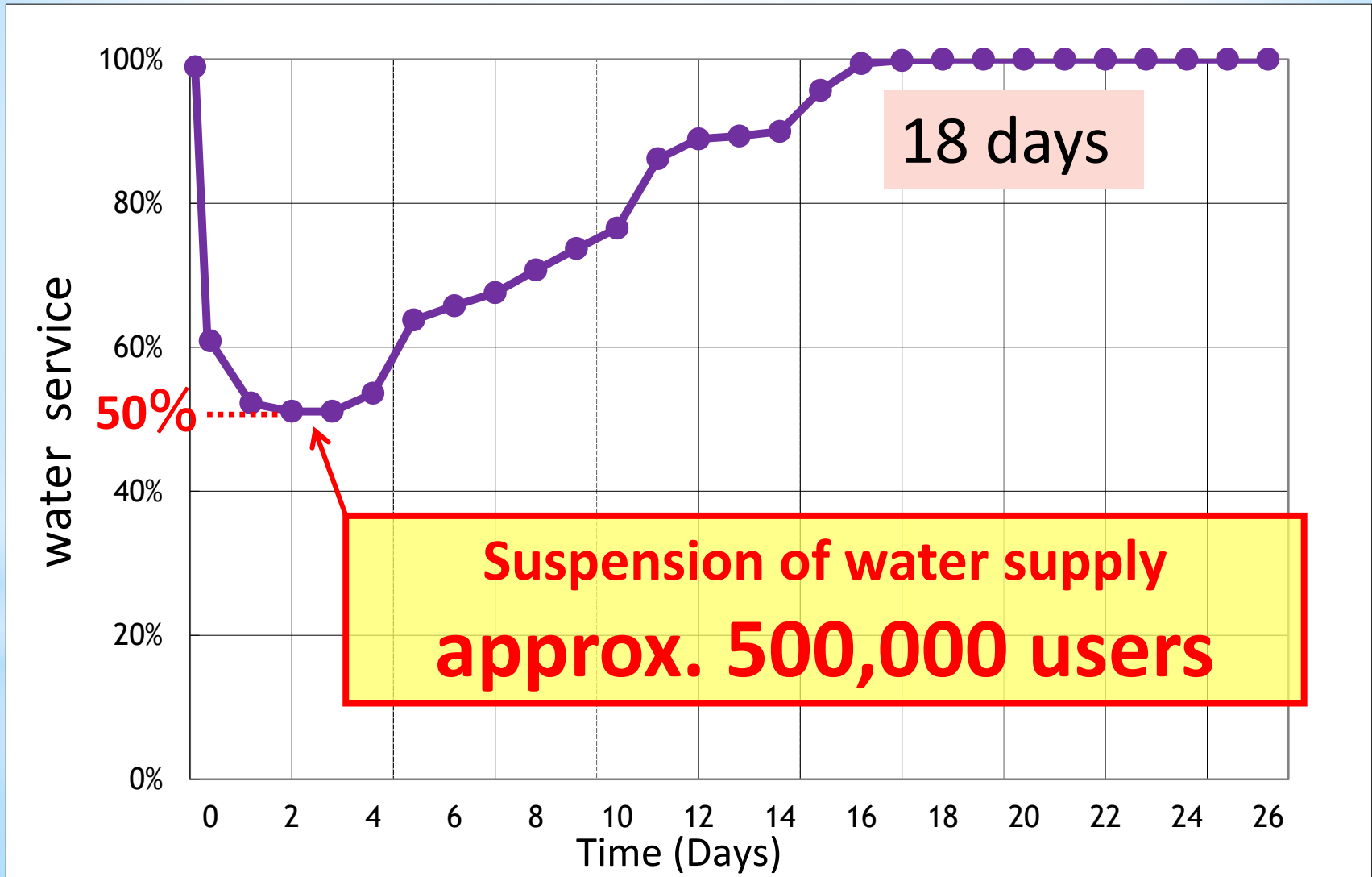
Disaster Prevention and Mitigation Initiatives learned from the Great East Japan Earthquake

Kunihiko ONUMA
Sendai City Waterworks Bureau

Great East Japan Earthquake



Recovery of the water service



Problems?

Human resources for emergency response

Fuel shortage

Emergency water supply



Disaster Mitigation and Efficient Response

Disaster Mitigation

Disaster-resilient facilities

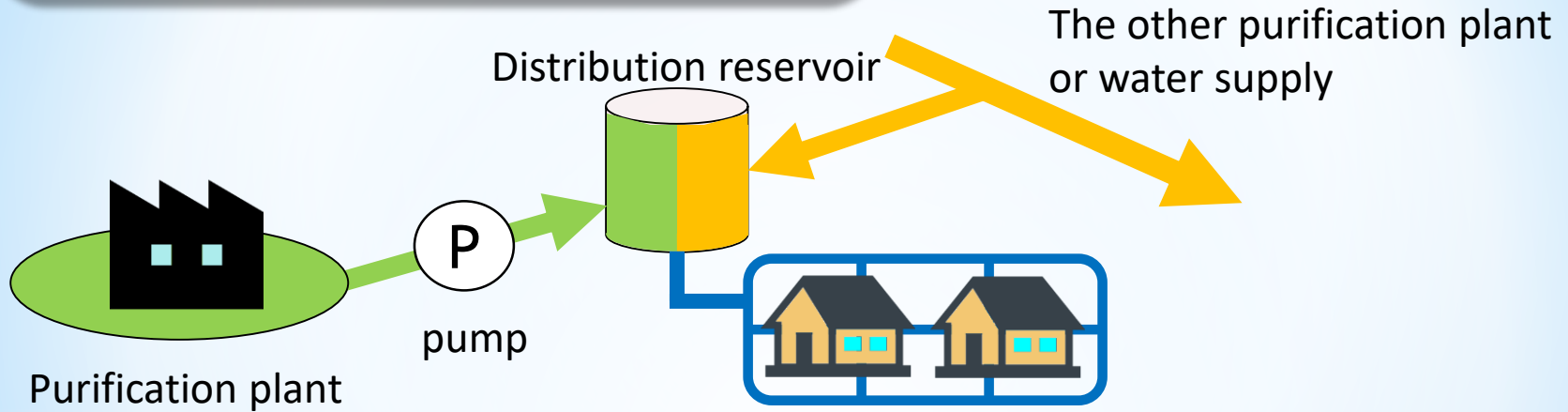
Earthquake-resistant route to key medical institutions

Dual Transmission System

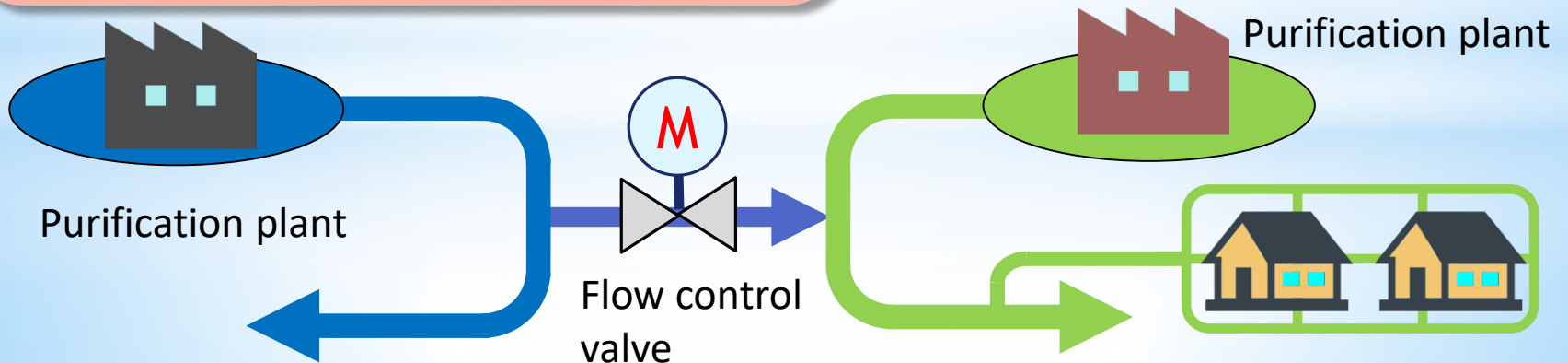
Countermeasures for long-term blackout

Dual Transmission System

Distribution reservoir



Water distribution mains



Countermeasures for long-term blackout

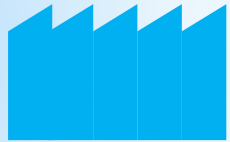
Enable to operate for 72 hours

Tank volume over 100L

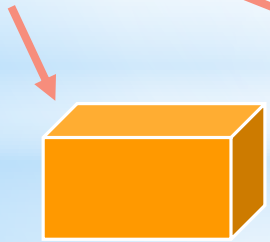
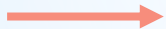
Tank volume less than 100L

Expand fuel tank

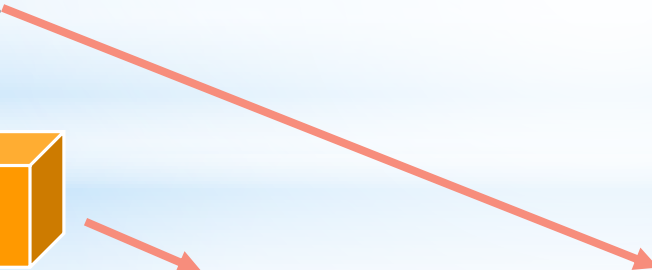
Refuel by fuel supply vehicle



Purification plant



Pump station



Distribution reservoir



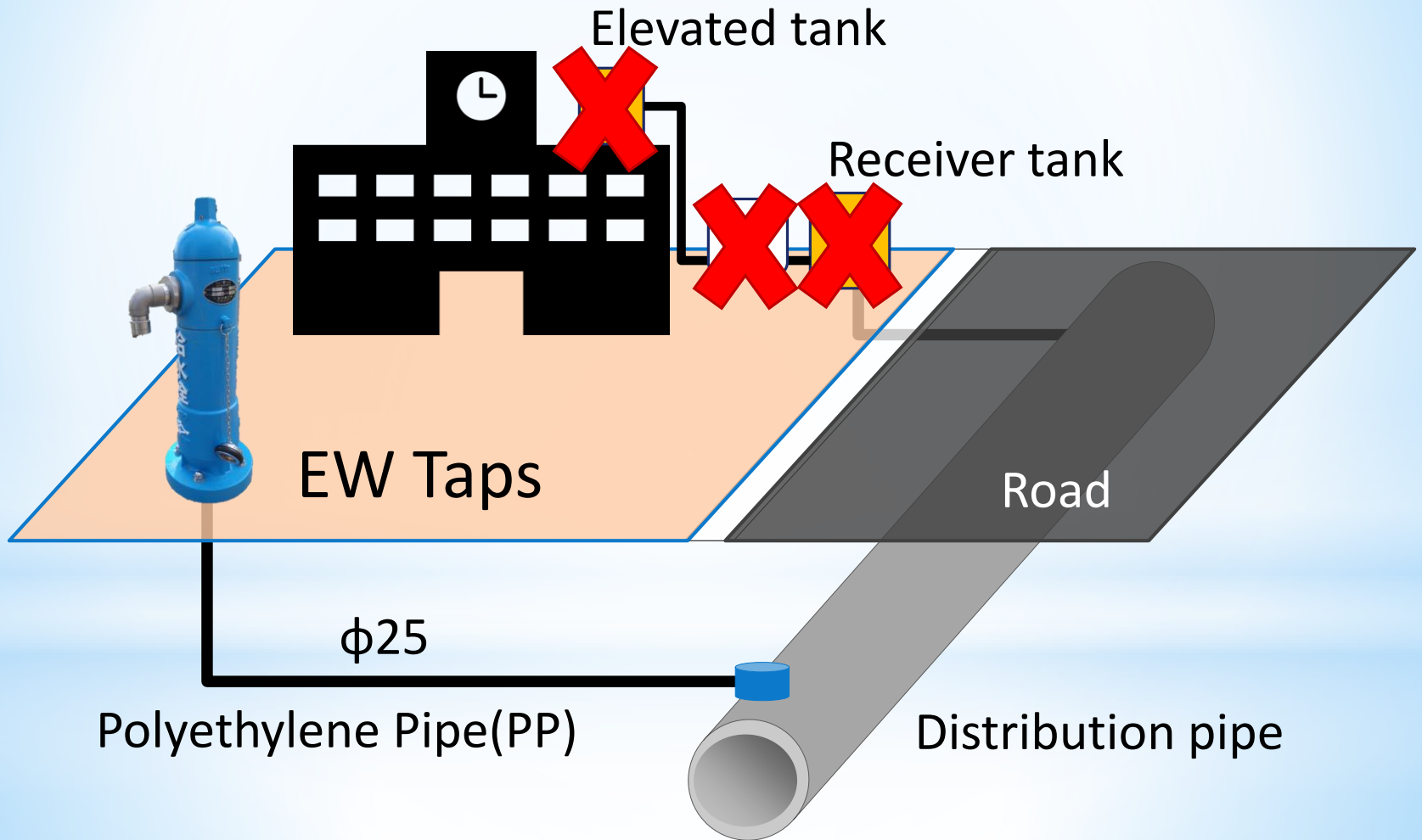
Efficient Response

Installation of Emergency Water Taps

Enhancing Cooperation with other cities

Revision of Risk Management Manual

Emergency Water Taps



Emergency Water Taps



177 places

Annual disaster training



Communities

**Evacuation
center
steering
committee**



City Officers



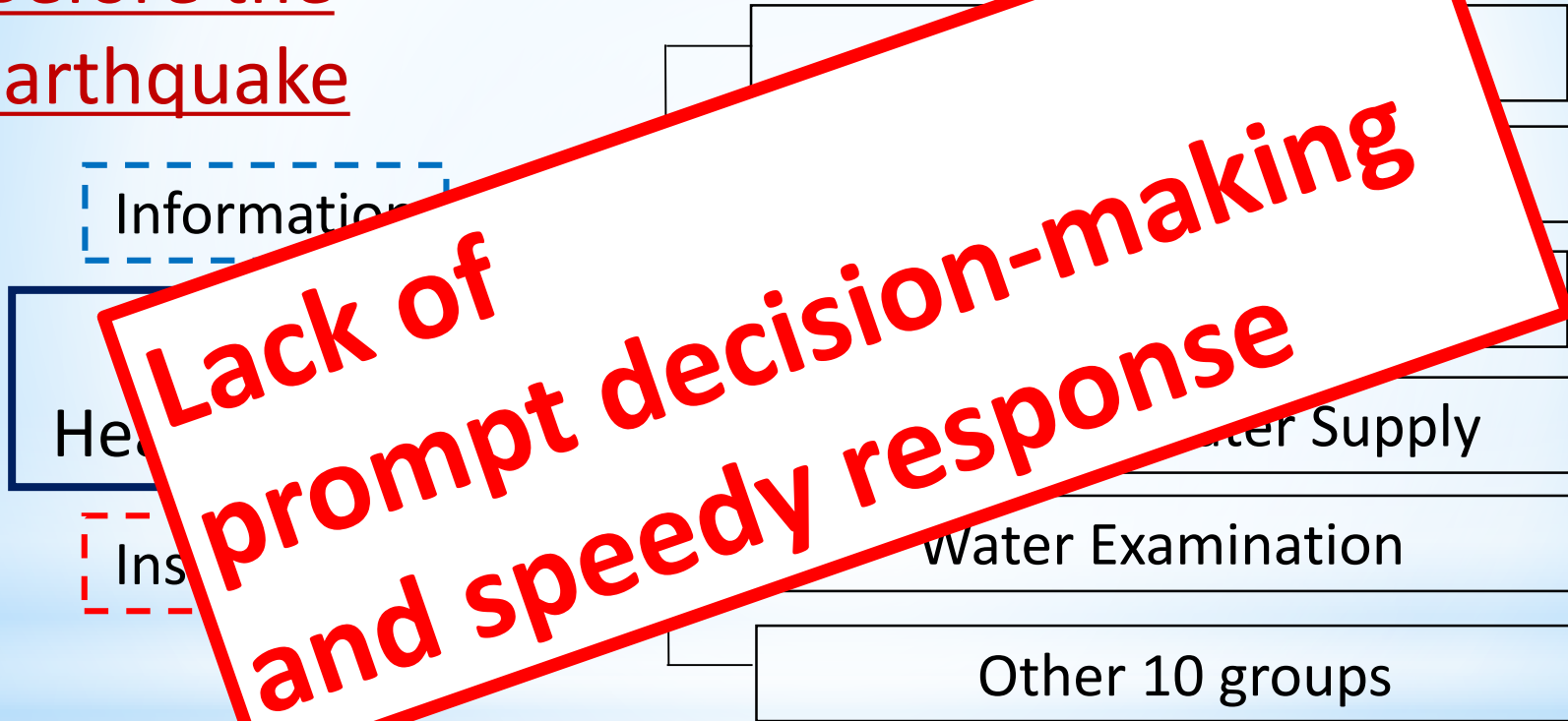
Public facilities staffs
and Teachers

Annual disaster training



Risk Management Manual

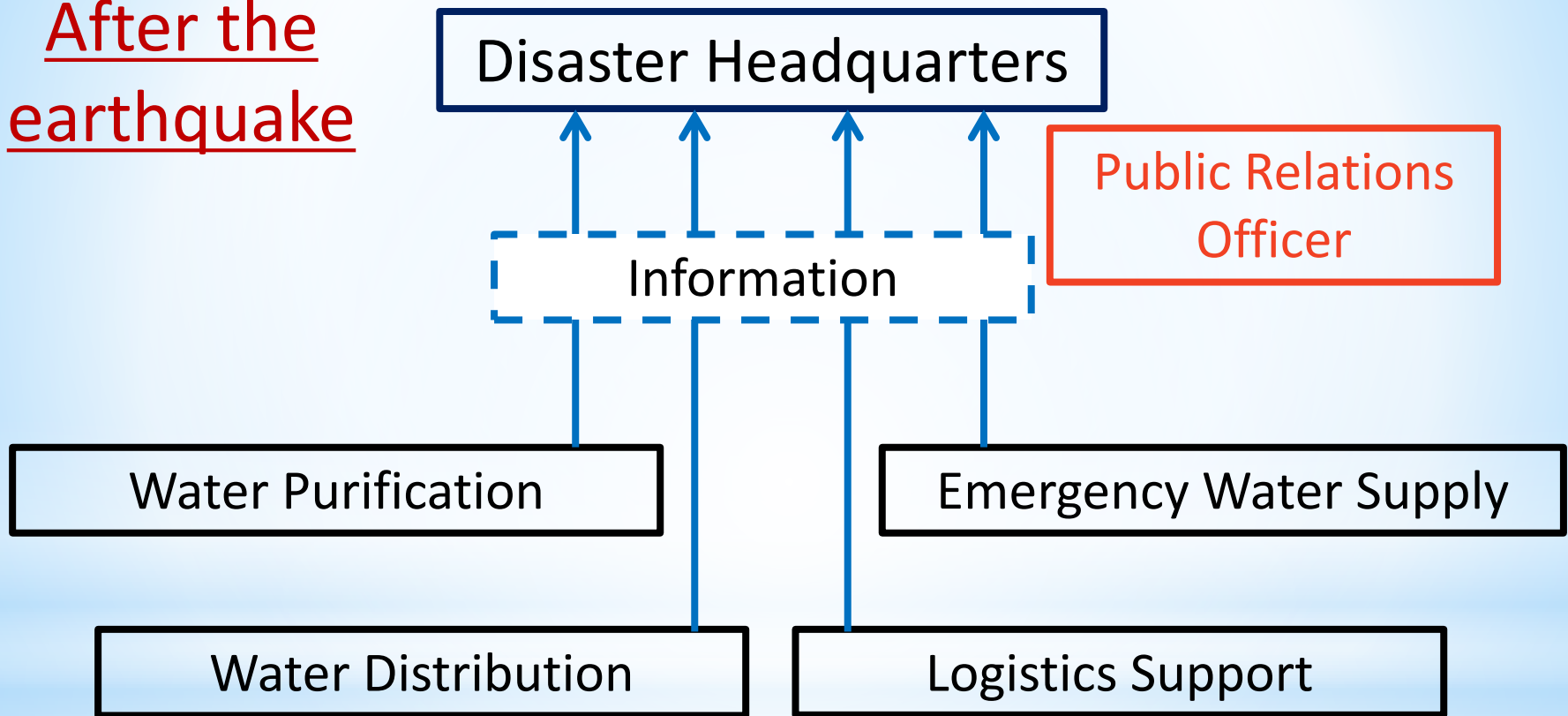
Before the earthquake



All information is centralized

Risk Management Manual

After the earthquake



Each group can make their own decisions

Disaster-resilient Waterworks Model, Connecting all to the Water of Life

