

The Prioritized Pipeline Maps for Emergency Restoration

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JAPAN

Yokohama City



Yokohama

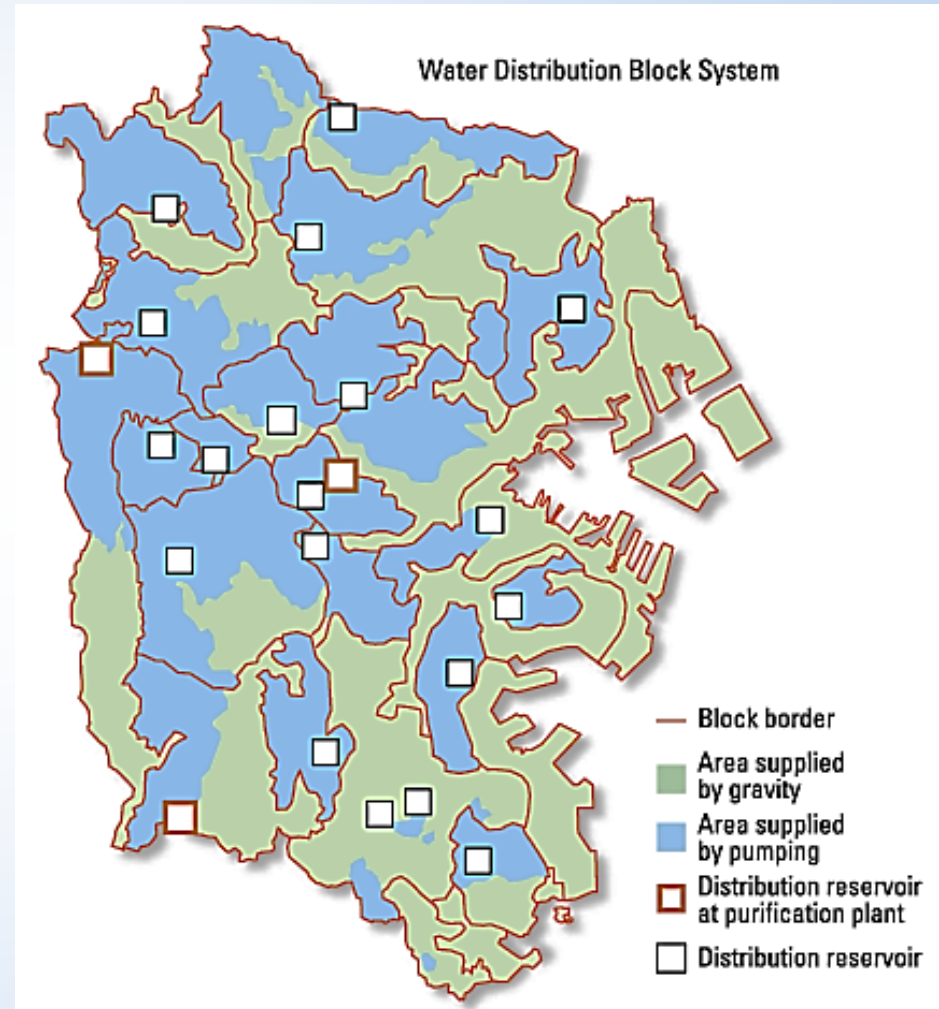
Area 435.290 km²

Population 3,733,886

Density 8,578 people / km²

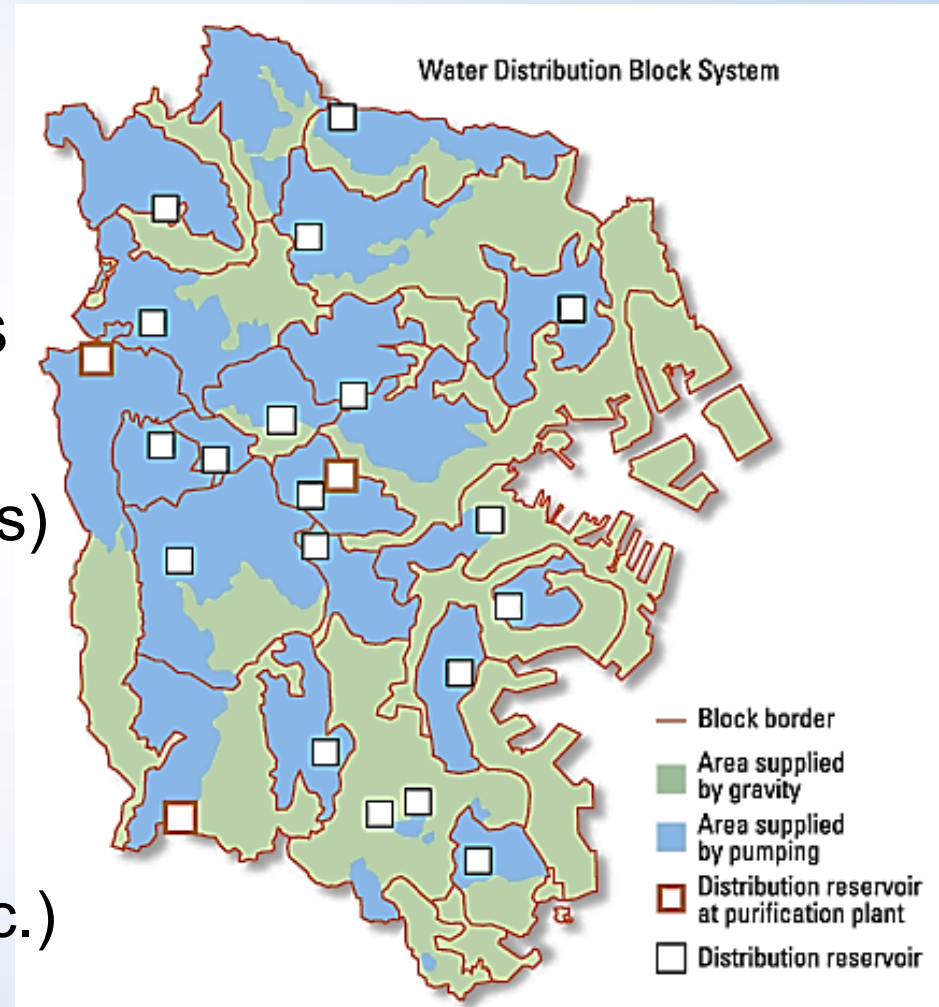
Altitude ~ 159.4 m

Water Supply in Yokohama City

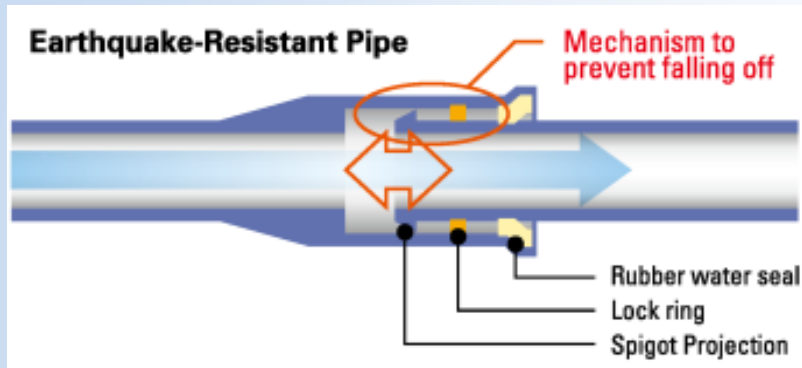


Water Supply in Yokohama City

- 41 water distribution block systems
(24 pump systems & 17 gravity flow systems)
- 248 measurement facilities
(flow rate, water pressure, water quality, etc.)

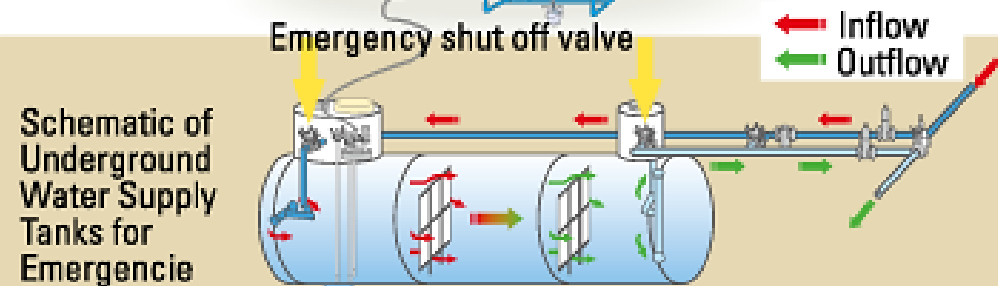


Earthquake measures in Yokohama City



● Underground Water Supply Tanks for Emergencies

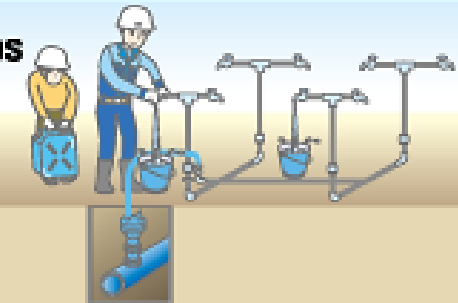
134 Tanks



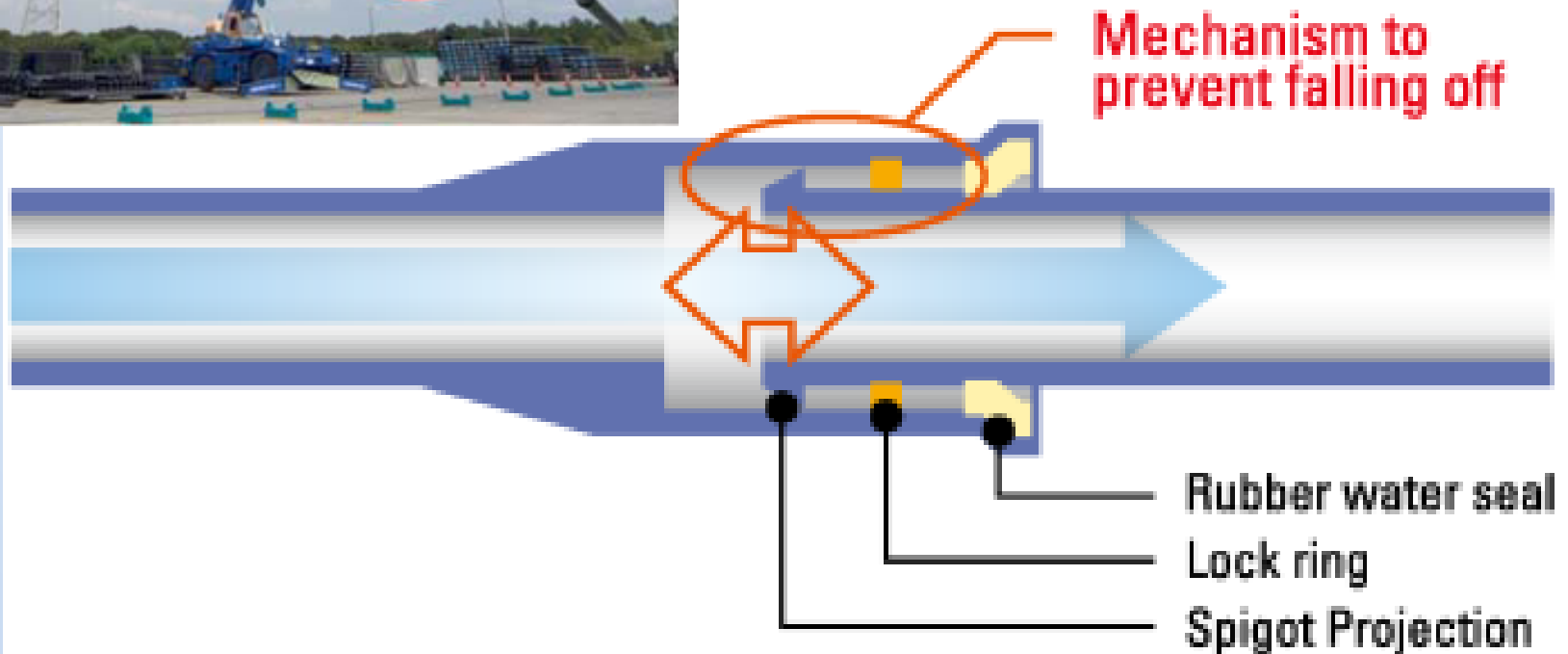
● Emergency Water Taps

358 Taps

Schematic of
Emergency Water Taps



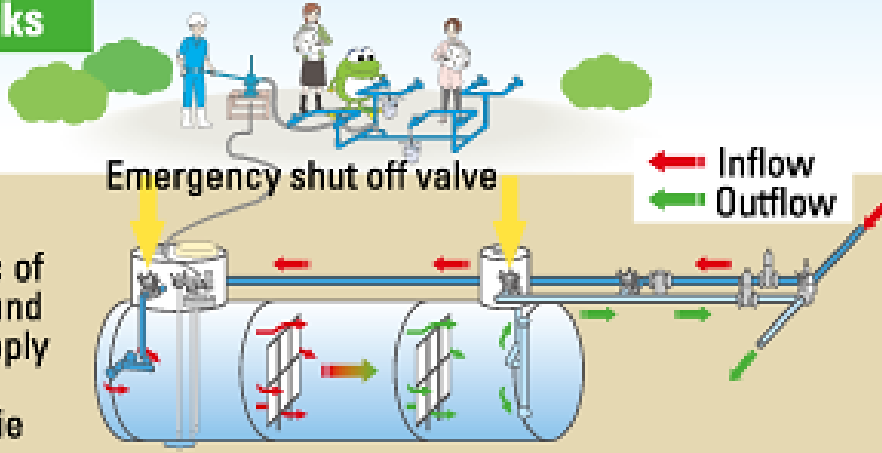
Earthquake-resistant Pipe



Underground Water Supply Tanks and Emergency Water Taps

Underground Water Supply Tanks for Emergencies

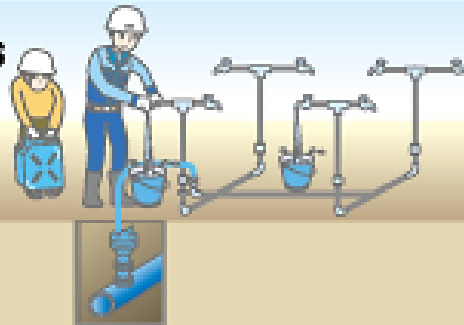
134 Tanks



Emergency Water Taps

358 Taps

Schematic of Emergency Water Taps



Promotion of Earthquake Measures to Citizens



Stocking of drinking water

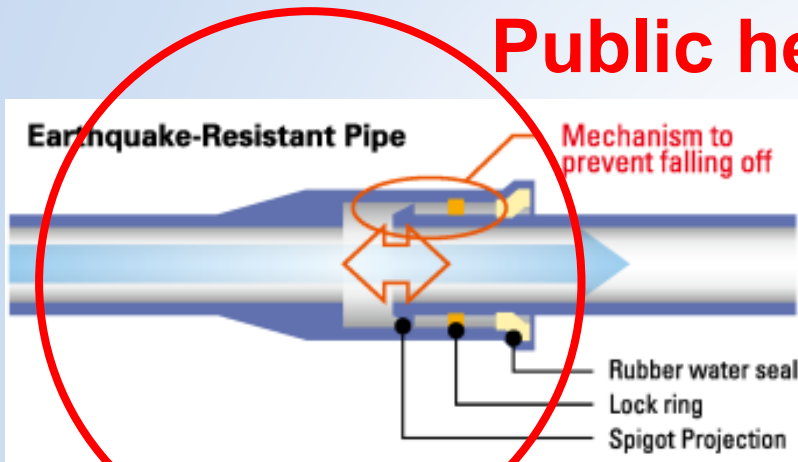


Emergency water supply drill

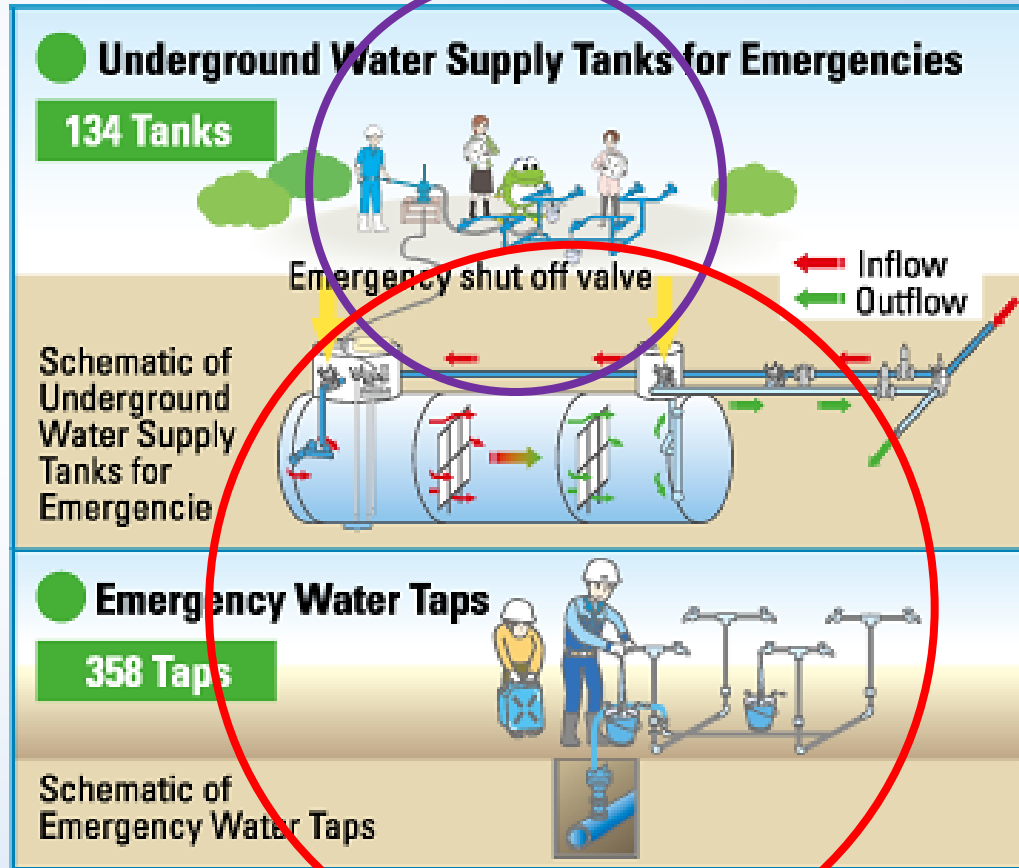
Earthquake Measures in Yokohama City

Public help

Mutual help



Self-help

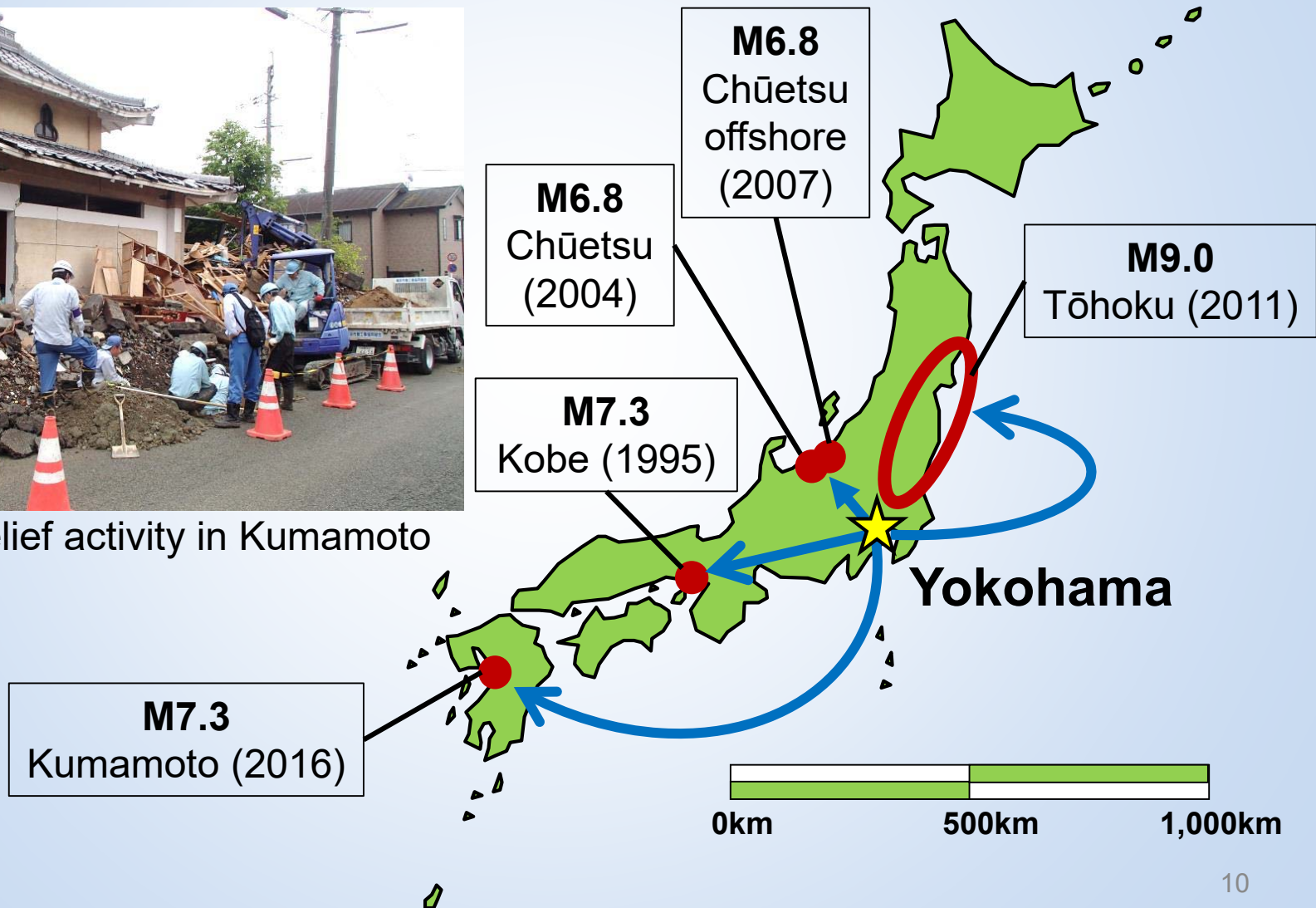


Public help

Disaster Relief Activities to the Past Earthquake Disaster Area



Disaster relief activity in Kumamoto



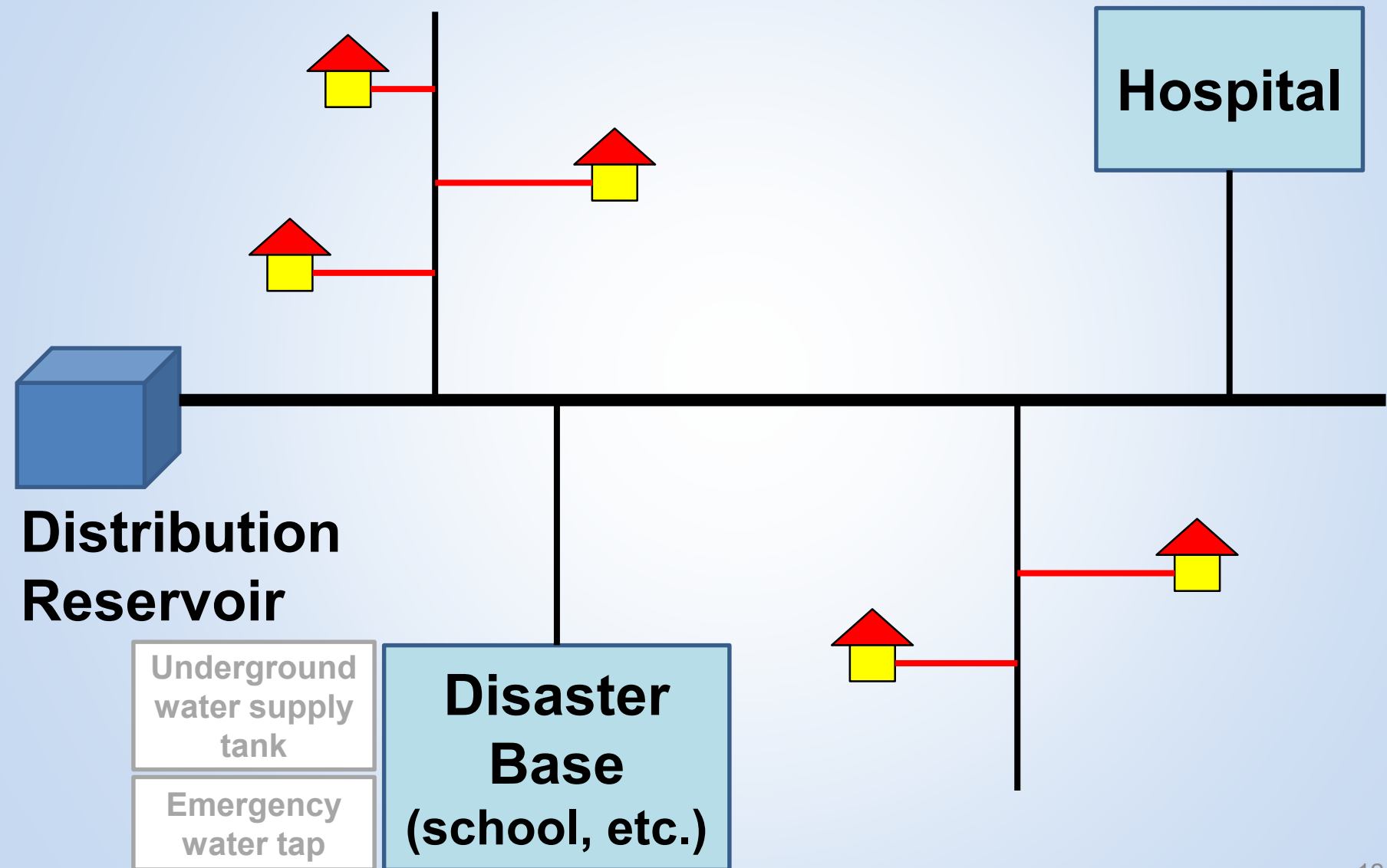
In Case of Earthquake Disaster in Yokohama City

When receiving external assistance/relief
from other water utilities....

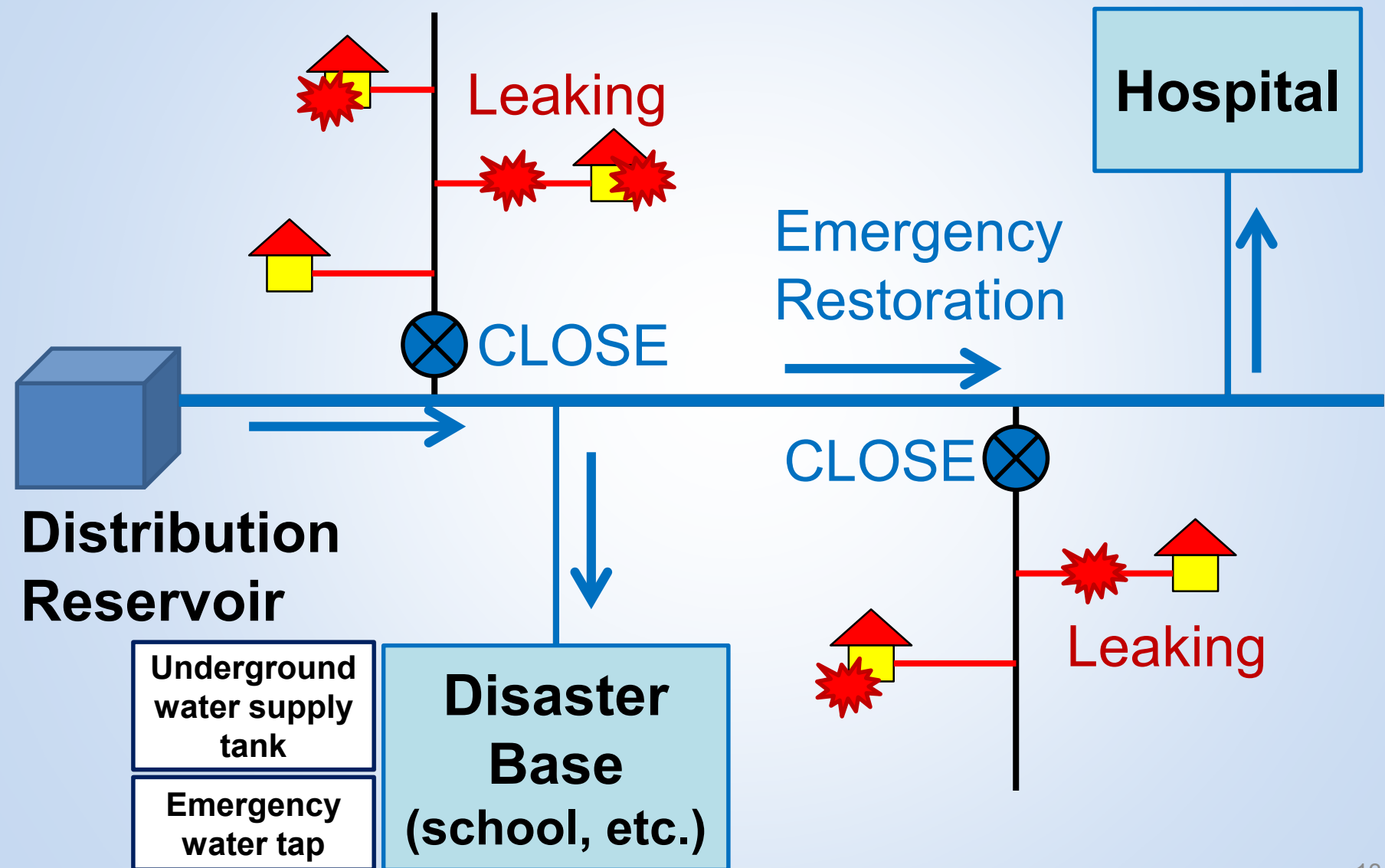
- (1) Prepare pre-planned restoration procedures
- (2) Prepare suitable maps in advance
- (3) Make restoration plans
combining water supply and sewage system

⇒ We created prioritized pipeline maps
for emergency restoration

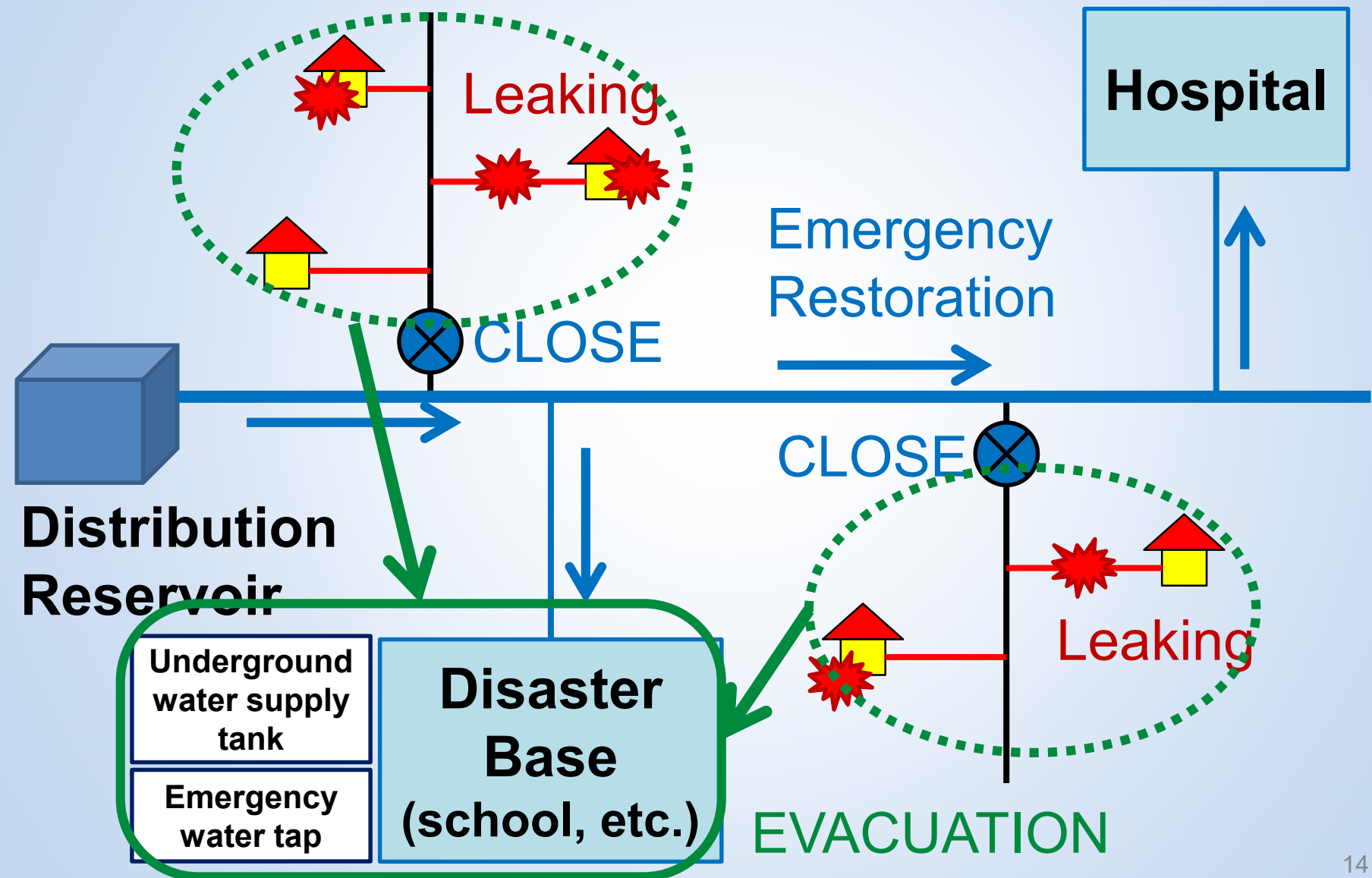
Concepts of Emergency Restoration



Concepts of Emergency Restoration



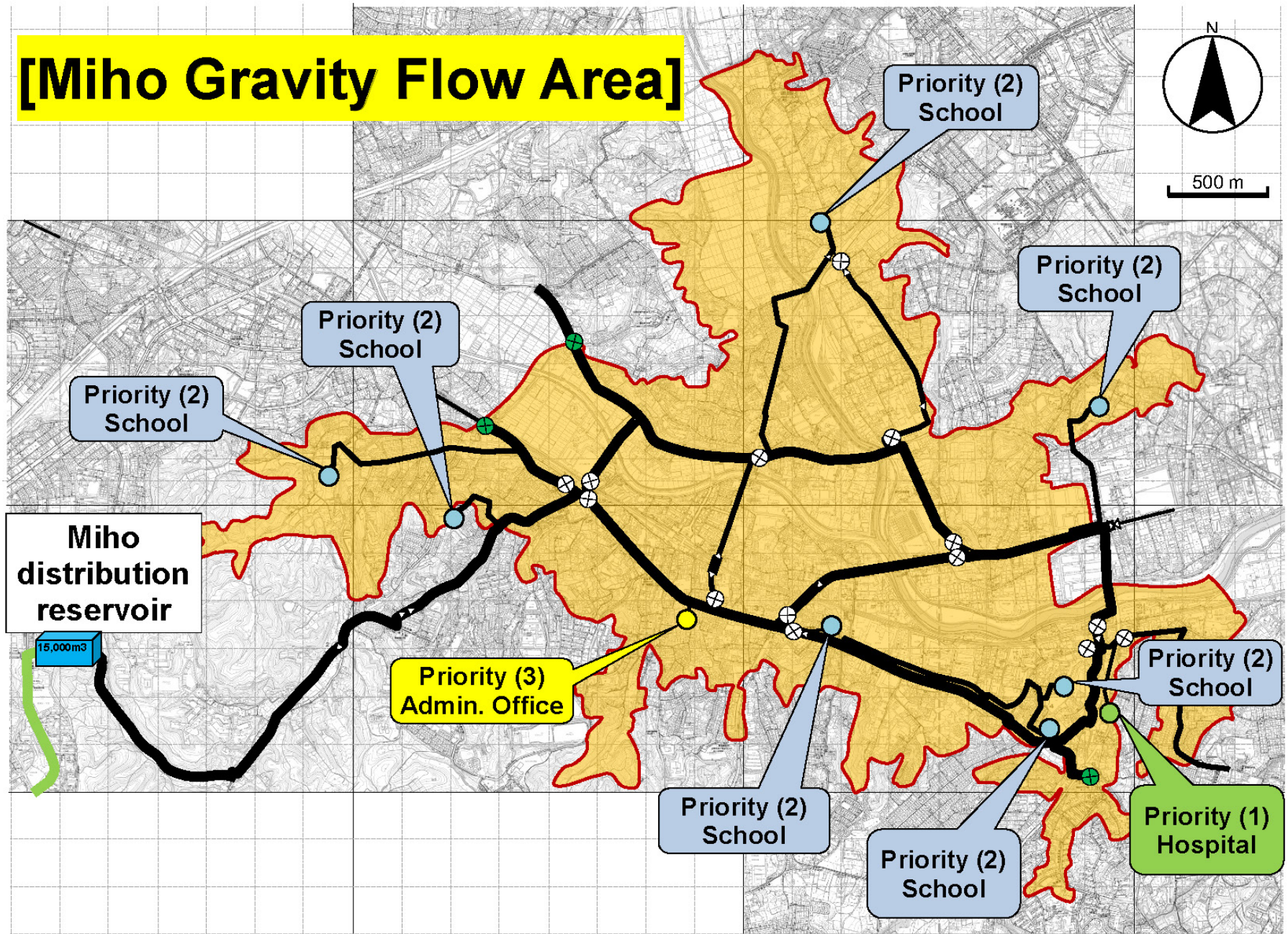
Concepts of Emergency Restoration



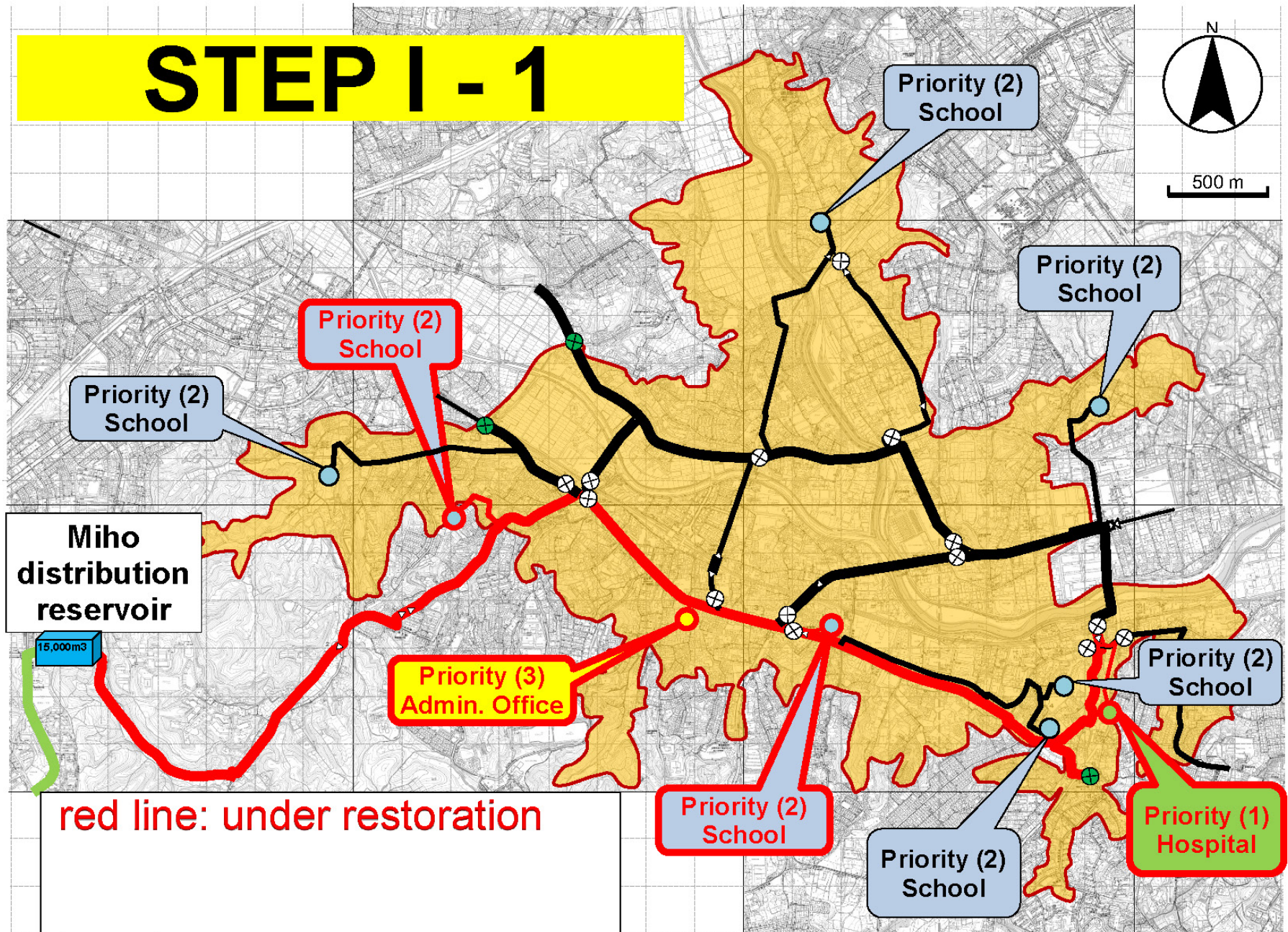
Priority of Important Facilities

Step	Priority	673 Important Facilities	Number of Locations
I	1	Medical institutions (Hospital)	74
	2	Disaster bases (school, etc.) (emergency water tap stations, underground water supply tanks)	567
	3	Emergency restoration bases (City Hall and district administration offices, etc.)	30
	4	Main railway stations	2
II	5	Main water distribution pipes (400 mm or larger)	
	6	Major water pipes of 300 mm or less	

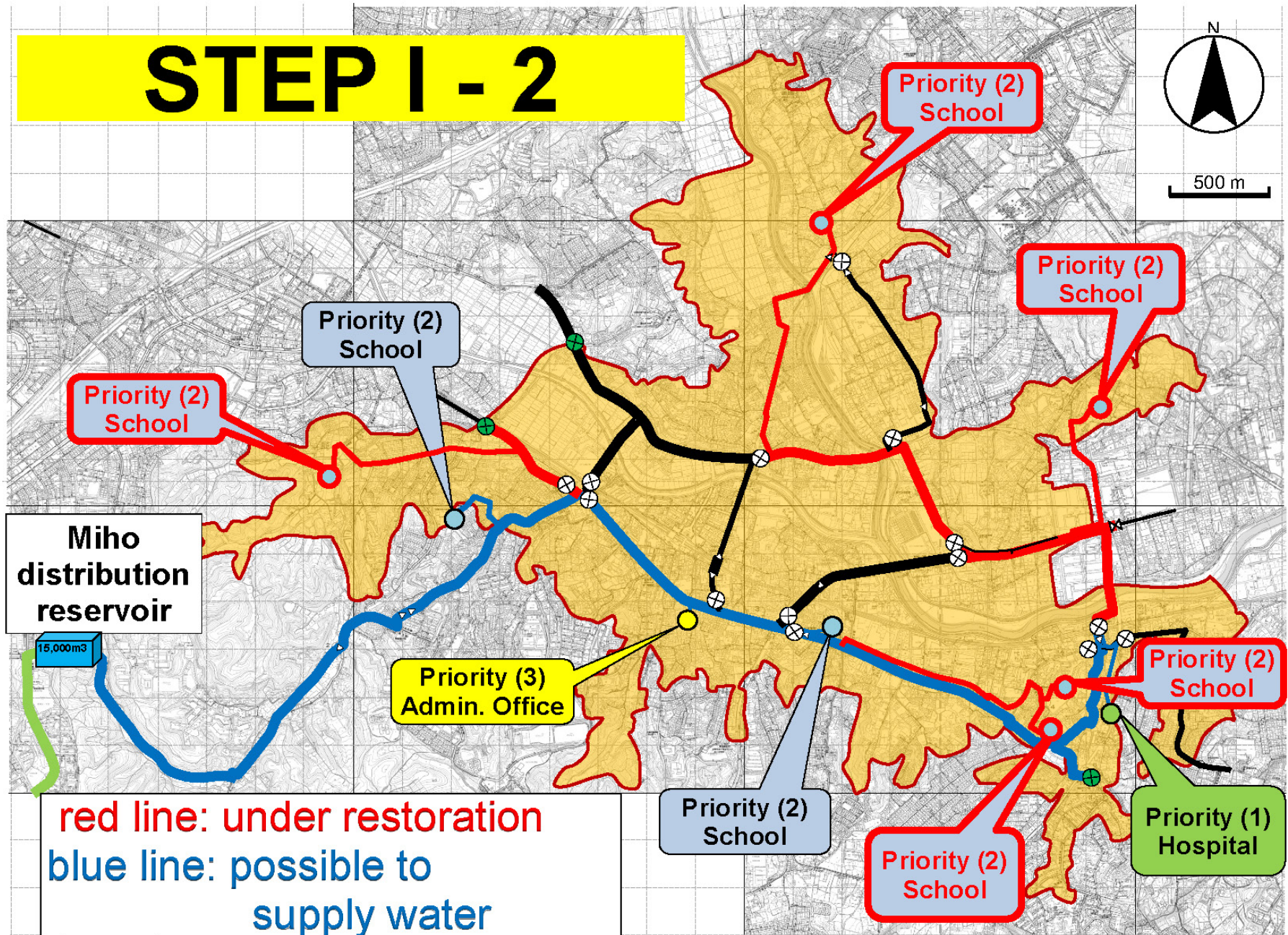
[Miho Gravity Flow Area]



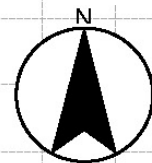
STEP I - 1



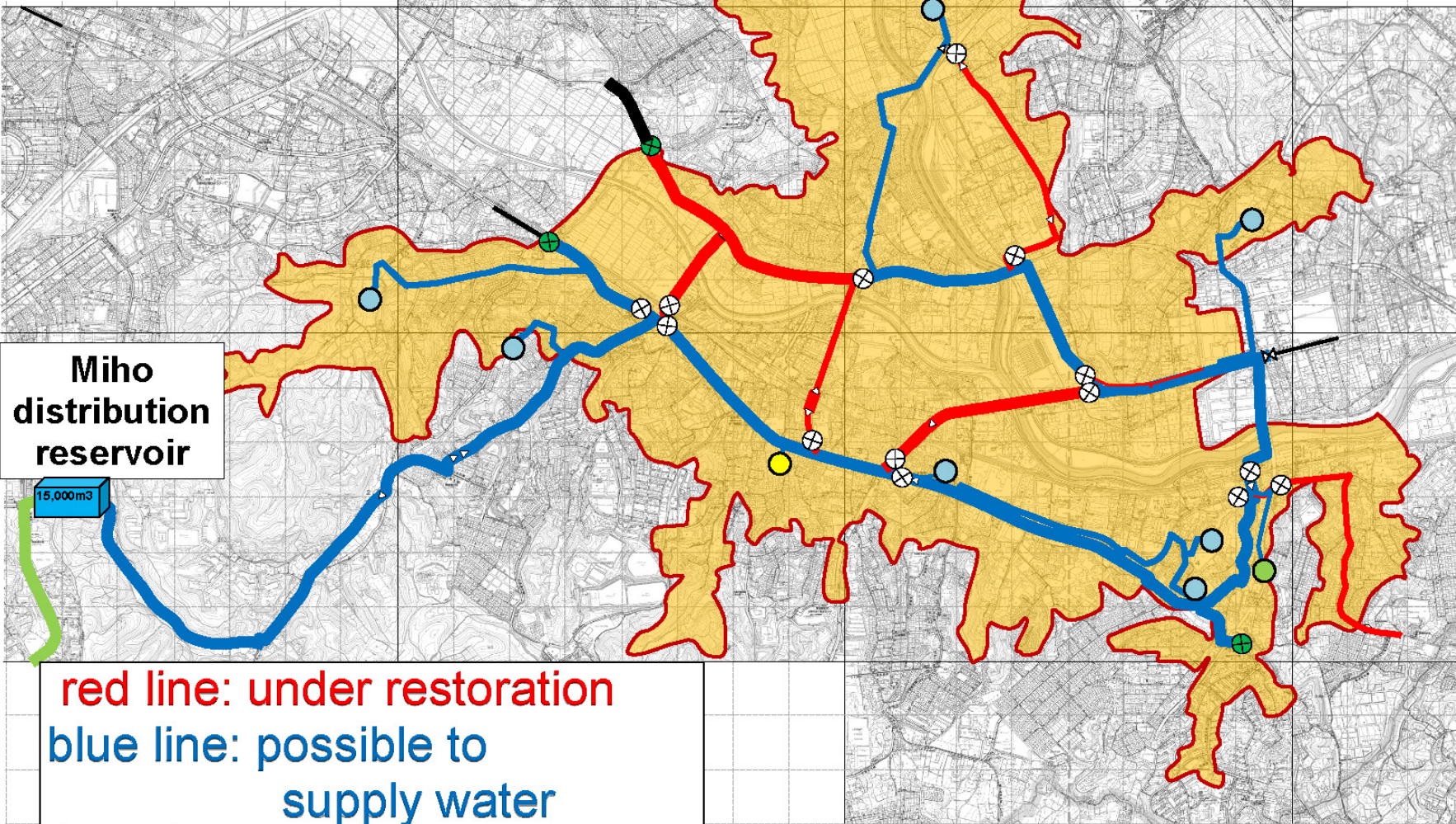
STEP I - 2



STEP II



500 m



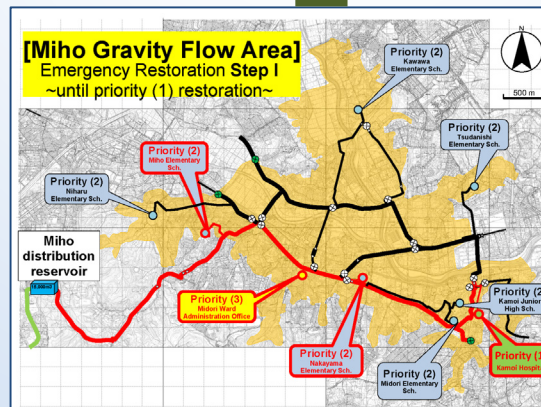
Effectiveness of the Prioritized Pipeline Maps

**Damaged
Yokohama**

**Other water
utilities**

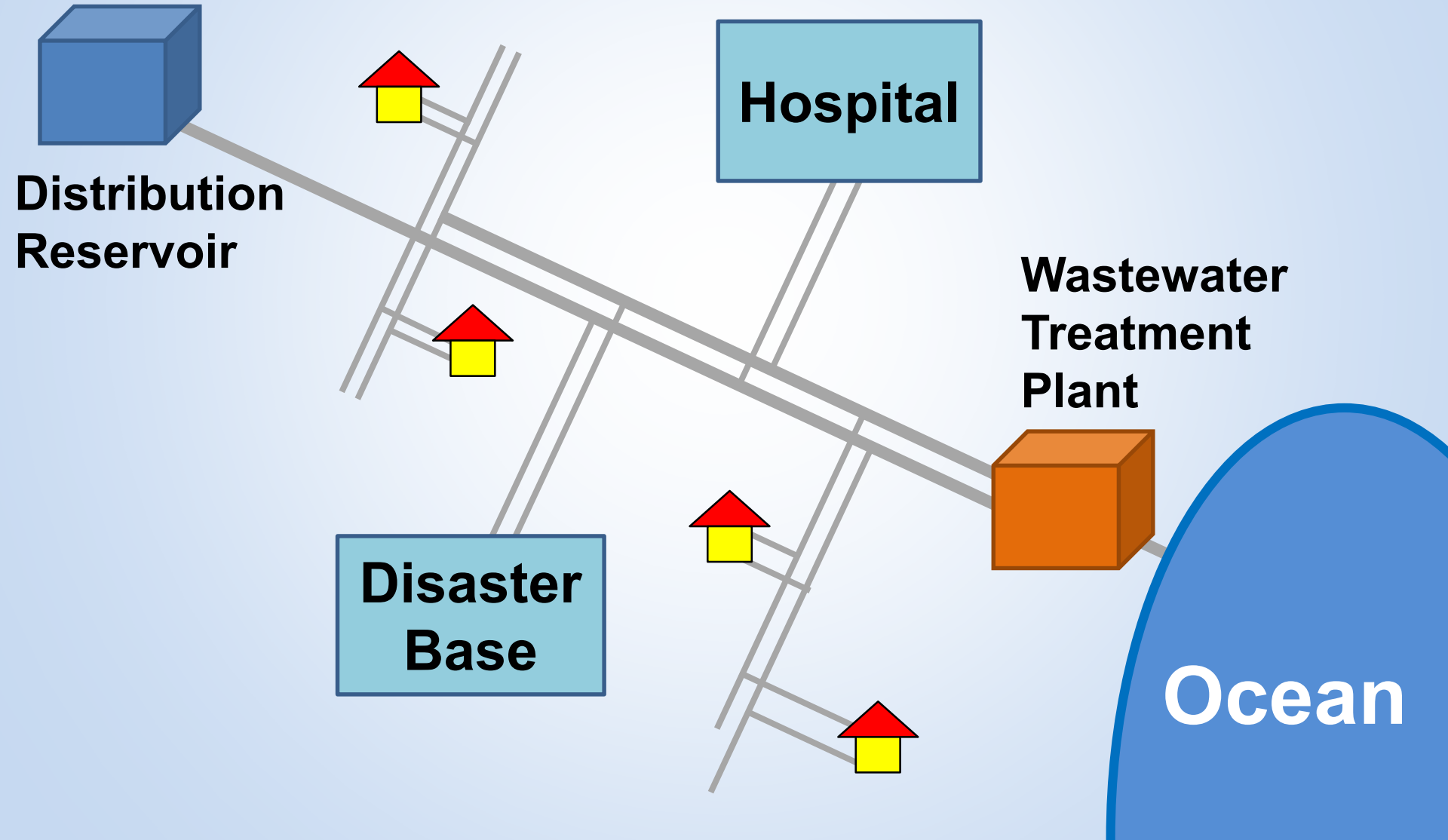
provide

**Prioritized
pipeline
maps**

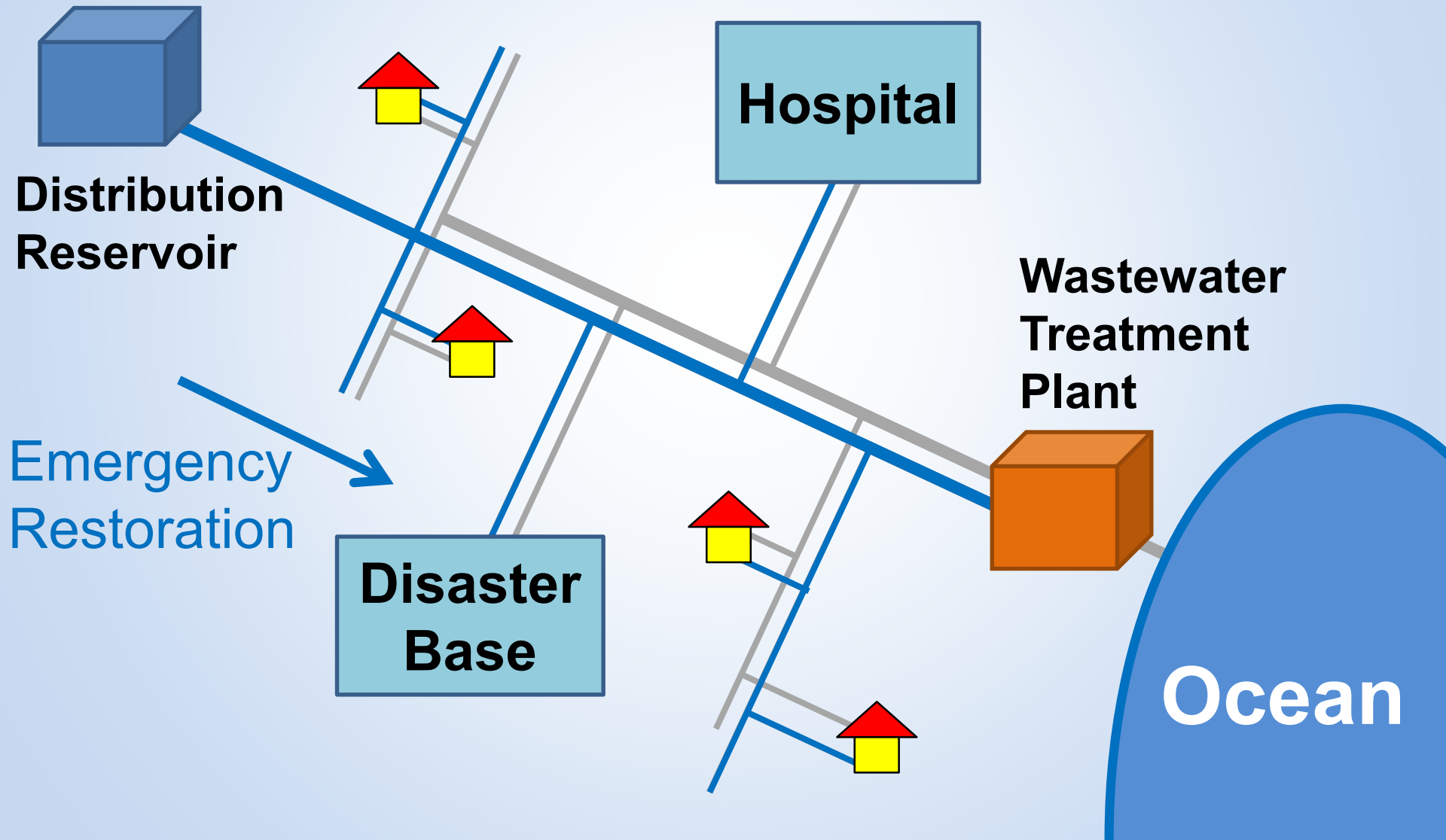


**Efficient
restoration
↓
Swift water
supply**

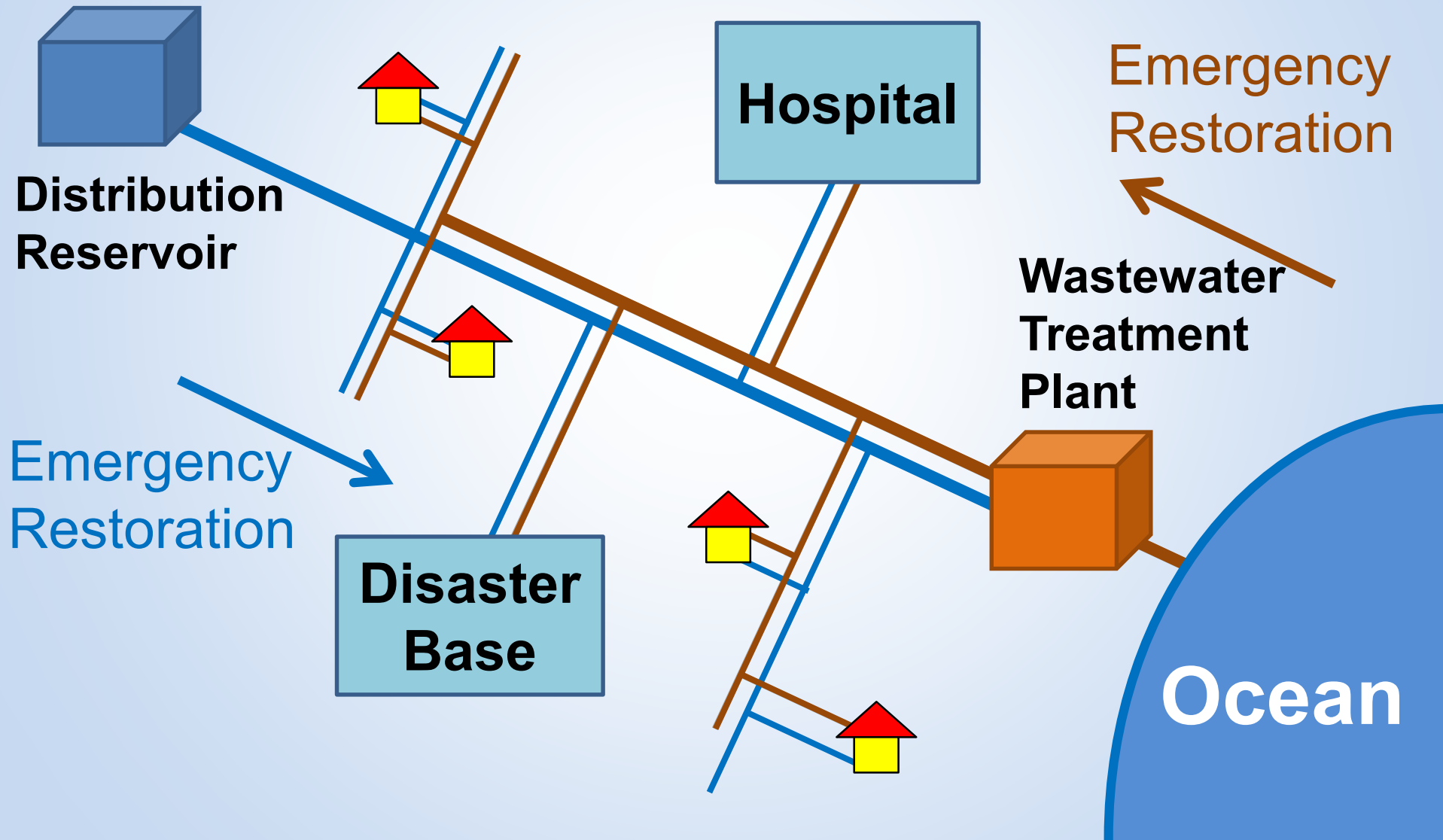
Restoration Concepts of Water Supply and Sewage



Restoration Concepts of Water Supply and Sewage



Restoration Concepts of Water Supply and Sewage



Conclusion

Aim: Provide safe water as soon as possible
in case of earthquake disaster

To achieve this aim....

- Anticipate the possible damage to the facilities
- Plan restoration in advance
- Restore suffered facilities in the most efficient way

⇒ We utilize the prioritized pipeline maps
for emergency restoration

Thank You for Your Attention

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