Methods and Effects of Securing Water Supply to Citizens Even at an Event of Sudden Accident

- Development of Water Supply Stations for Supporting the Stable Water Supply in Tokyo Metropolitan Area-

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INTRODUCTION

- Japanese waterworks have become a major lifeline supporting urban life and socio-economic activity.
- Therefore, it is the mission of water utilities to respond properly and without delay to issues and risks that waterworks face, such as degradation of facilities, earthquakes, and climate change.
- Tokyo Waterworks has developed a diverse range of facilities in order to fulfill this mission, including planned promotion of water supply stations.
- Here, we introduce measures for securing water supply to users (consumers) even in the event of accidents, by developing water supply stations.

Development of Water Supply Stations for Supporting the Stable Water Supply in Tokyo Metropolitan Area

1. Water Supply Stations

- Water supply stations include distribution reservoirs and distribution pumps, as well as facilities to distribute water to users in the water distribution area that supply stations are responsible for (Figure 1).

- Function to temporarily store tap water processed at purification plants in a distribution reservoir and distribute to fluctuations.
- Function to use reservoir water when there is an accident to eliminate or mitigate the impact of water supply.

2. Principles of Development (Figure 3)

- The distribution reservoir capacity of water supply stations was set with the goal of securing the amount that flows in 12 hours at the design maximum daily supply for 1) time fluctuations adjustment and 2) an emergency capacity.
- Consider an appropriate size for the water distribution area to which supplied.

3. Construction of New Water Supply Stations, Expansion of Existing Stations, and Division and Reorganization of Water Distribution Areas

- Water distribution areas with issues
  - Limited land for development causes...
  - Lack of distribution reservoir capacity
  - Larger water distribution areas
  - Districts that receive water directly from a purification plant, without it passing through a distribution reservoir.
- Risk of water suspension and turbidity impact spreading after an accident or disaster.

Emergency water supply measures at water supply stations

1. Emergency water supply stations (Figure 5, Figure 6)

- Water supply stations are designated as emergency water supply stations, which continue emergency water supply when there is an accident or disaster.

- Water tanks are installed permanently in the emergency water supply area, so that local government officials can conduct emergency water supply activities for residents.

2. Reinforced in-house power generation facilities (Figure 7, Figure 8)

- To continue water supply services even in major blackouts, it is necessary to be able to generate power independently.
- Therefore, in-house power generation facilities large enough to maintain average daily supply are being installed.

Conclusion

- Tokyo Waterworks is working to develop water supply stations as an effort to build a water supply system that will be strong and stable well into the future.

- We will promote development of effective and efficient facilities, provide technology and knowledge, and so forth, as part of technical cooperation on waterworks utilities improvement in foreign cities.

- Security water supply for residents as much as possible even in the event of a sudden accident or the like.

Figure 1: Conceptual Diagram of Water Supply Station

Figure 2: June 19th, 2018 (Friday) 2018 FIFA World Cup Russia (Distributed among the people in a colonized area)

Figure 3: Development of Water Supply Stations

Figure 4: Division of large water distribution area (Conceptual diagram)

Figure 5: Emergency Water Supply Area in a Water Supply Station

Figure 6: Water tanks

Figure 7: In-house power generation facility

Figure 8: A water tank