Formation of Information Transfer Methods for Envisaged Disasters

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Kazunori Iwamoto ／ Yokohama Waterworks Bureau
Fujio Nagasawa ／ Yokohama Waterworks Bureau
Hiroyuki Maeda ／ Yokohama Waterworks Bureau

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Damage to communication equipment due to the Great East Japan Earthquake

Picture provided by:
NIPPON TELEGRAPH AND TELEPHONE EAST CORPORATION

Collapse of a building with communication equipment

Picture provided by:
Yahoo! JAPAN East Japan Earthquake Picture Project

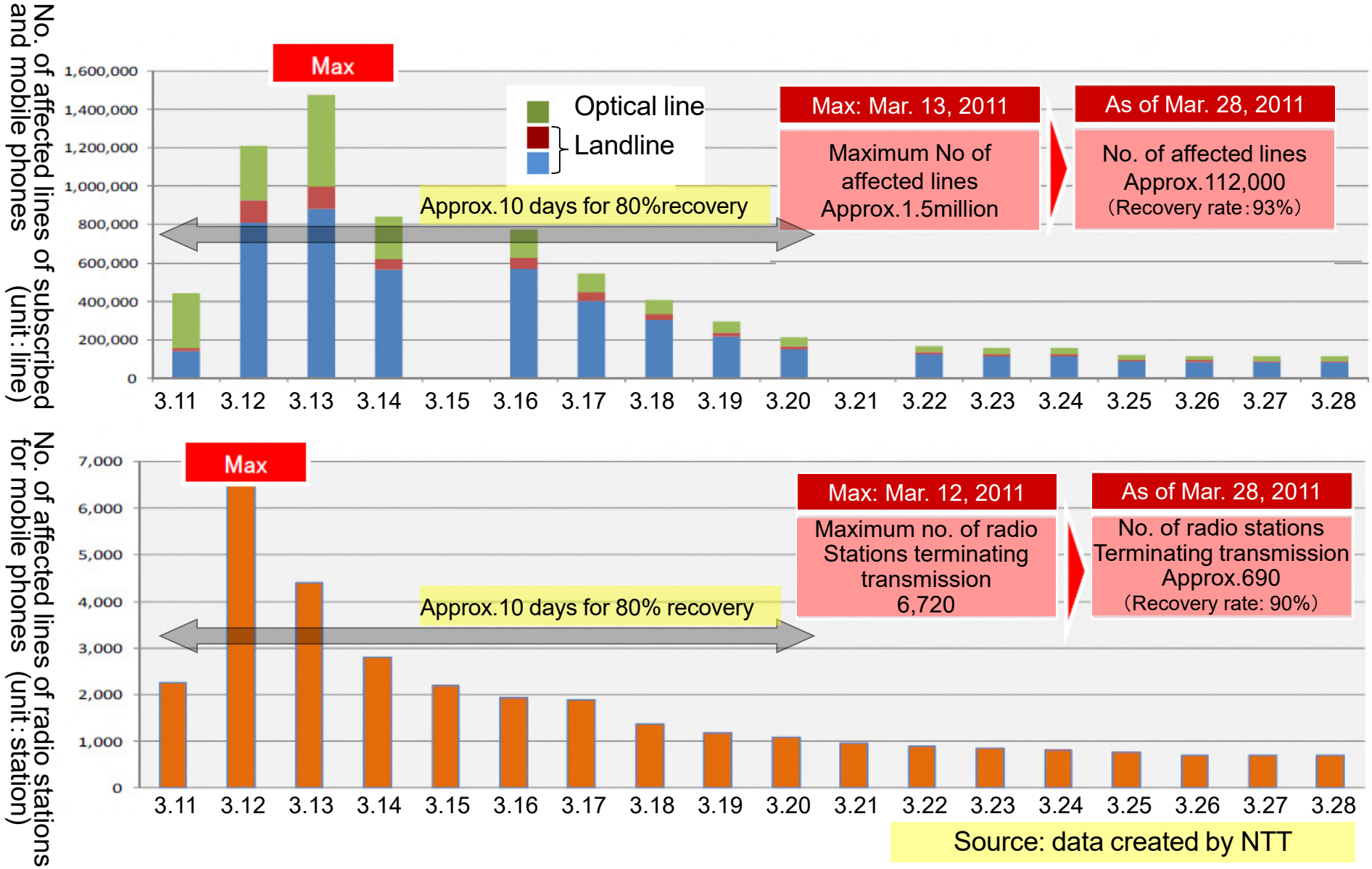
Collapse of utility poles and damage to communication lines

Picture provided by:
NIPPON TELEGRAPH AND TELEPHONE EAST CORPORATION

Destruction of communication equipment

- The power supply was suspended.
- Landline and mobile phones were interrupted.

Damage to communication equipment due to the Great East Japan Earthquake



Source: data created by NTT

Information transfer methods of Yokohama Waterworks Bureau

【Communication means and issues】

①Landline phones / Mobile phones

= It is highly possible that they will not be connected.

②Disaster prevention administration wireless equipment

= It is possible that control regulations will be imposed, to share the equipment in the City of Yokohama.

③Satellite mobile phones

= The number of satellite mobile phones installed in each office building is as small as one.

①

②

③

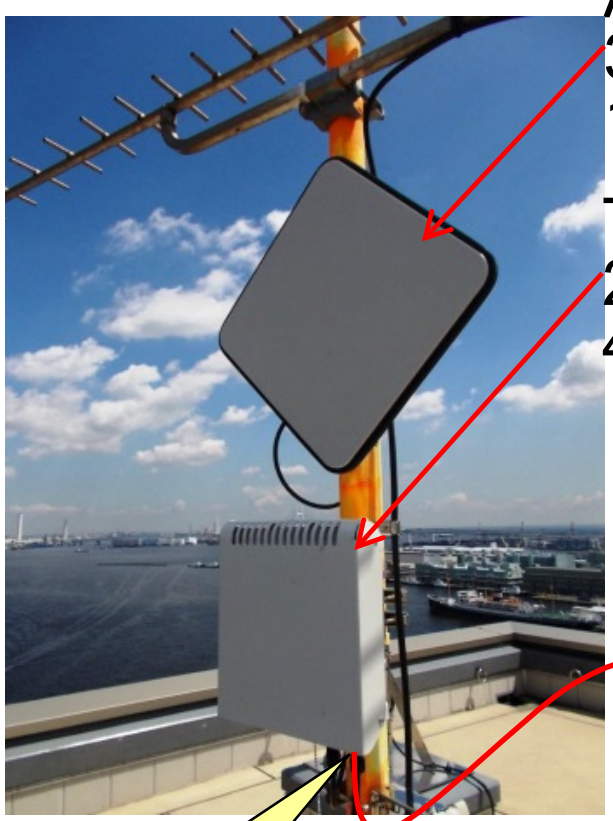
Information transfer methods of Yokohama Waterworks Bureau

Taking the issues into consideration…

Need to strengthen the emergency communications system

Development of an original communication line of Yokohama Waterworks Bureau
Introduction of 5GHz band FWA (Fixed Wireless Access)

Device configuration and features of 5GHz band FWA



Antenna
36 cm square
1.3 kg

Transceiver body
25 cm square
4.2 kg

Office telephones

Private Branch Exchange (PBX)

Office FAX

Router, HUB

PC

LAN Interface

LAN Interface =

A variety of IP-based communication equipment can be connected.

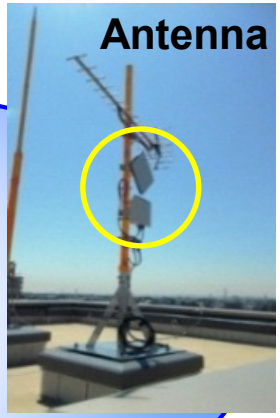
Device configuration and features of 5GHz band FWA

Nishiya Purification Plant

5GHz band FWA

Connection Speed
Approx. 2Mbps

Main Office
of Waterworks Bureau



LAN

LAN

Telephone (Extension)

FAX (Extension)

PC Data Communication

Telephone (Extension)

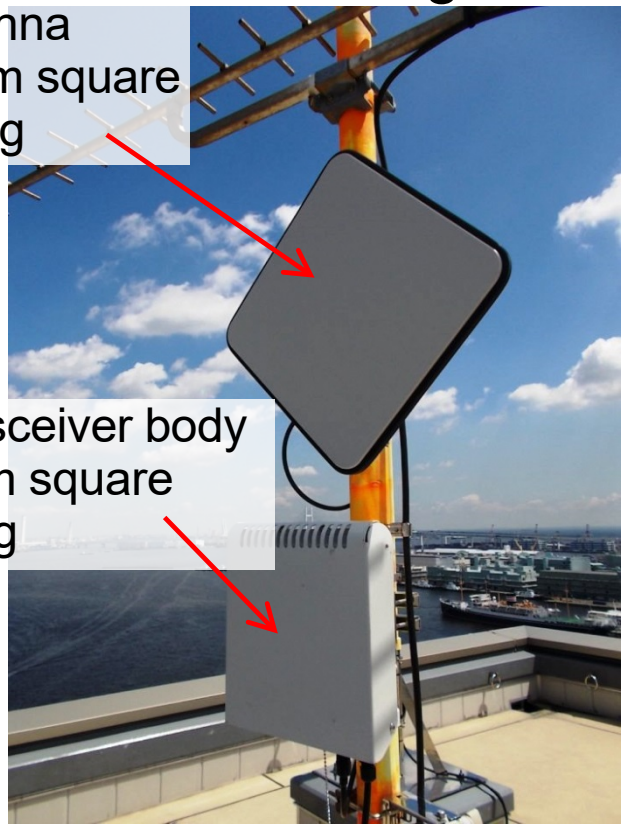
FAX (Extension)

PC Data Communication

Photo cited from the website of Yahoo!

Phone calls, FAX transmission, and PC data transmission can be performed,without relying on telecommunications carriers.

Device configuration and features of 5GHz band FWA



Antenna and transceiver body of 5GHz band FWA

Compact =

Can be installed almost anywhere

Speedy =

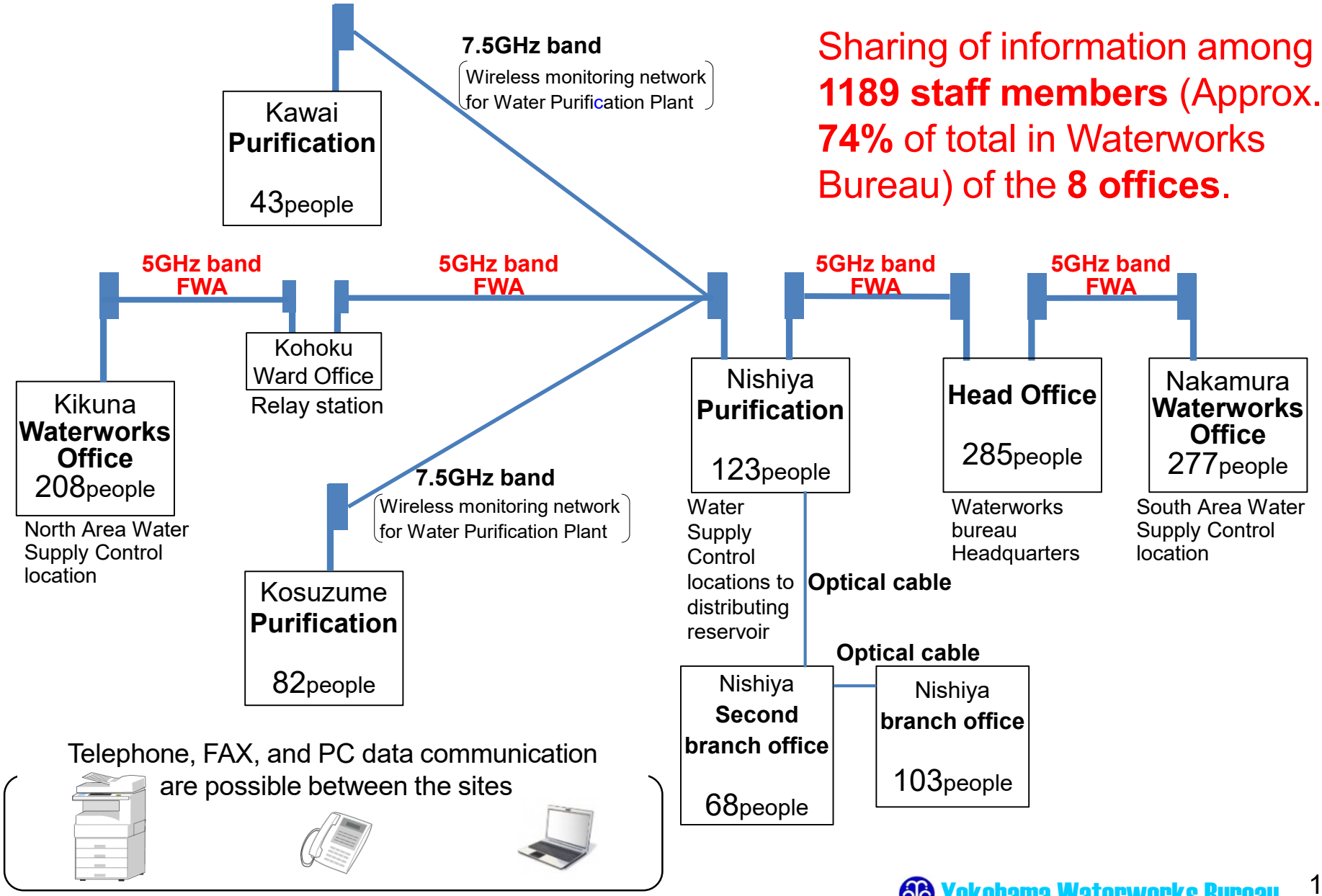
At a speed of about 22 Mbps between the Head Office and Nishiya Purification Plant

Inexpensive =

Low installation cost, about 1/5 of that for business-use transceiver

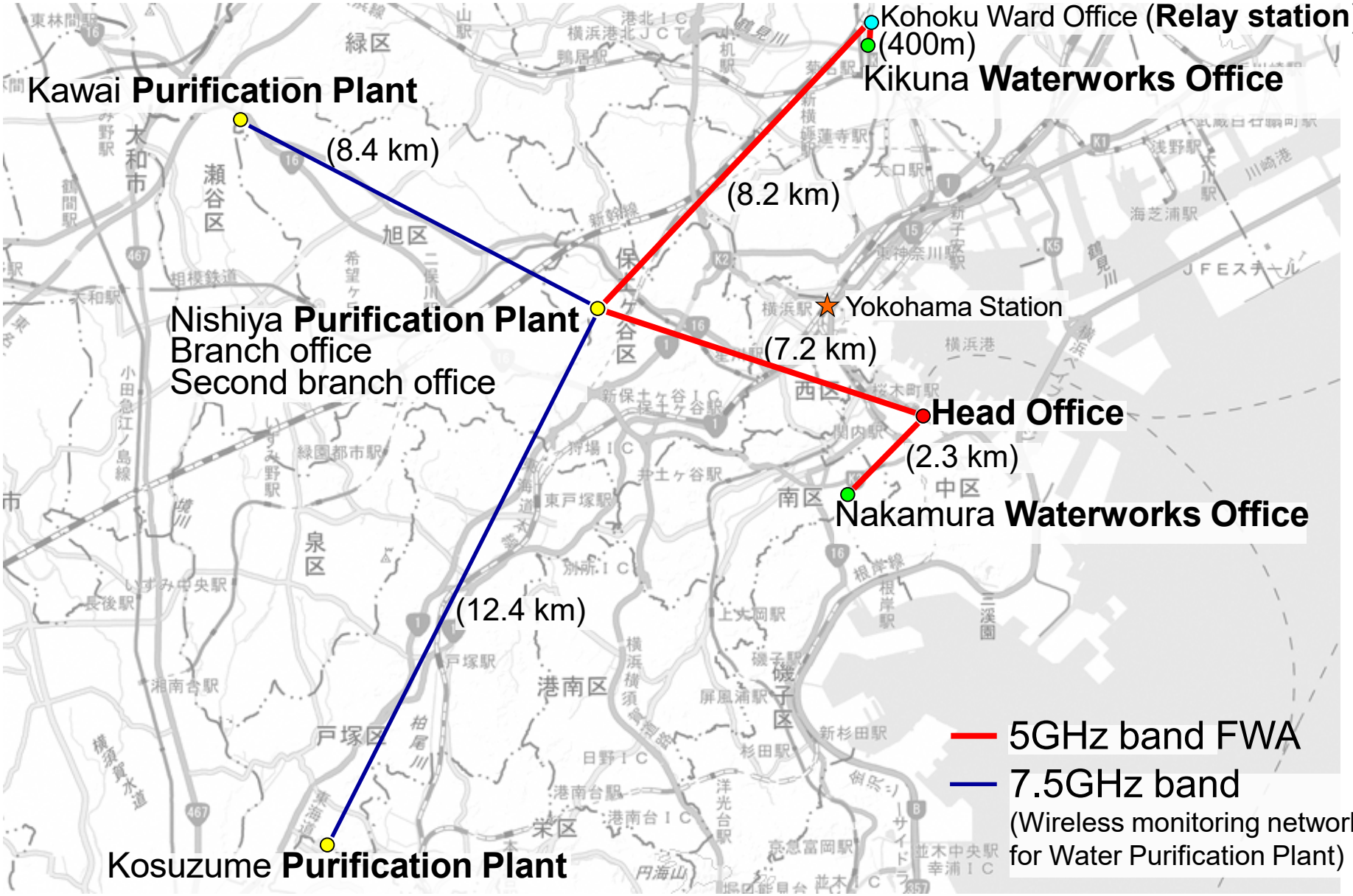
Antenna of transceiver for business use
(Reference: 7.5GHz micro wireless)

Introduction of 5GHz band FWA (Configuration of a wireless communication network)



Sharing of information among **1189 staff members** (Approx. **74%** of total in Waterworks Bureau) of the **8 offices**.

Introduction of 5GHz band FWA (positional relationship of office buildings)



Effects of introduction of 5GHz band FWA

Office telephones

Office FAX

PC

Familiar terminals

Can be used immediately as there is proficiency in using them

Disaster prevention administration wireless equipment

Satellite Mobile phones

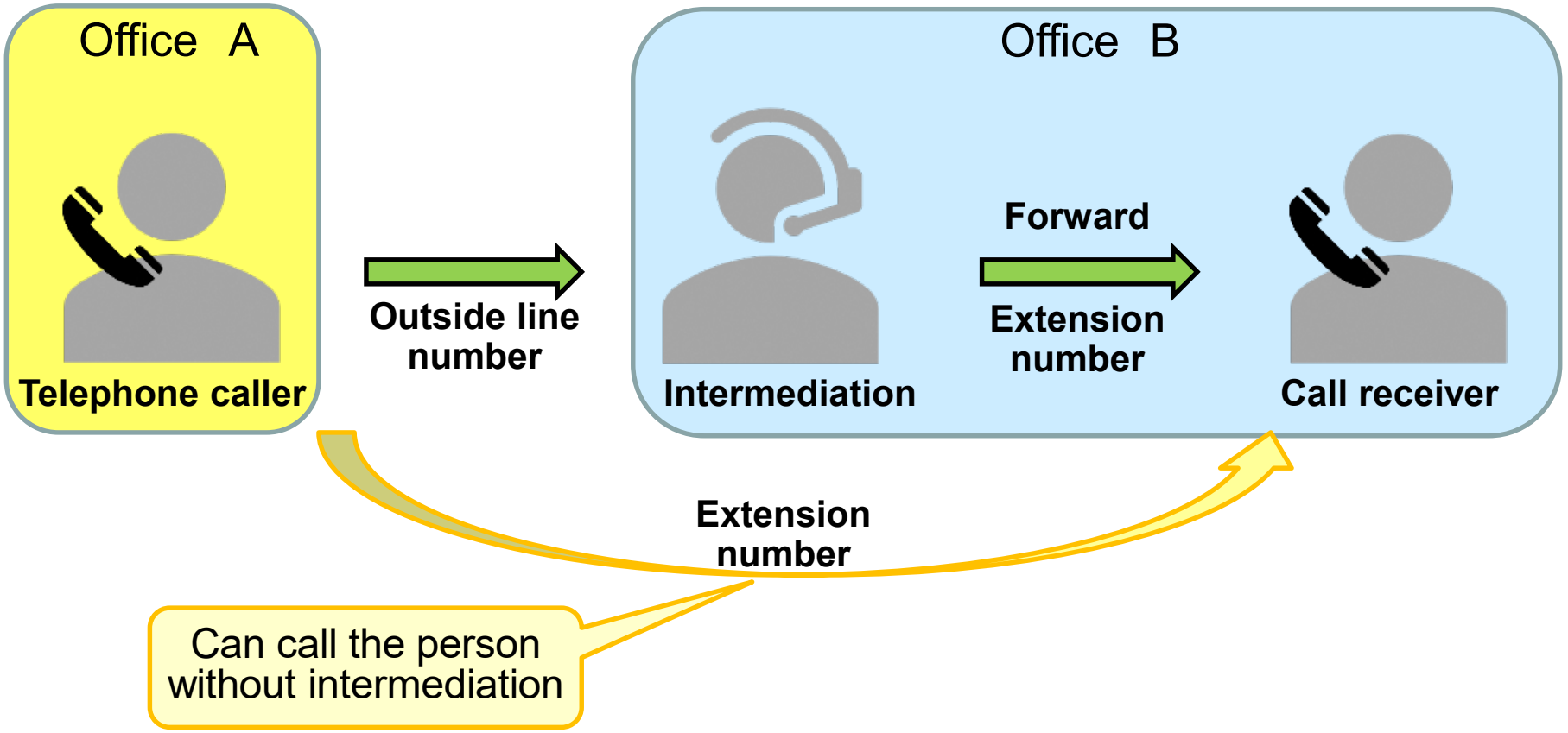
Unfamiliar terminals

Requires time to get used to using them

Usability improvement

Information can be exchanged both at normal times and at the time of disaster by using communication terminals with which staff are familiar.

Effects of introduction of 5GHz band FWA



Usability improvement

A caller can make a phone call directly to the person to whom he/she wants to speak.

Effects of introduction of 5GHz band FWA

Office A
(Telephone / FAX)

external number

call charges = **9.2 yen/3 min***

***intra-city call charges for NTT landline phones**

extension number

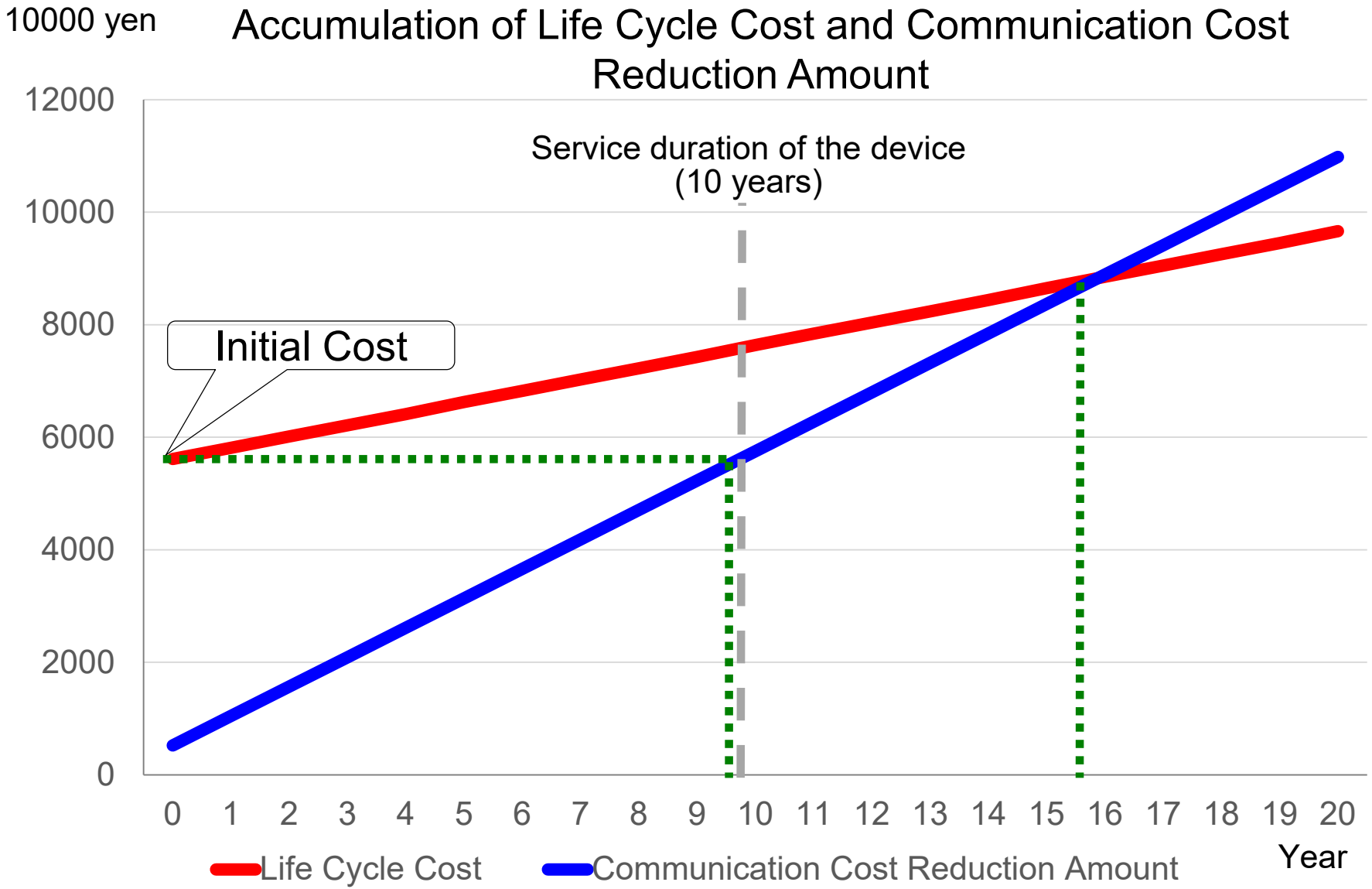
call charges = **0.0 yen/3 min**

Office B
(Telephone / FAX)

Reduce communication cost

Communication expenses between offices used on a daily basis become 0 yen.

Effects of introduction of 5GHz band FWA



Conclusion

- We have developed a disaster-resistant communication system, which many staff members can use because it does not require special terminals and the same means used at normal times suffice.

- Reduction in communication costs will be realized because no communication expense will arise as long as 5GHz band FWA is used on a daily basis.

Thank you for your attention.