Jan. 18. 2005 UNDR Session 5,4

ICT Saves Lives –
ICT in Disaster Reduction &
The Japanese Challenge for Global Standard

[e-University Network in ICT HRD for DR]

Prof. Toshio Obi, Director

Naoko Iwasaki, Ass. Director

ITU-Waseda ICT Center, Tokyo

Highlight of Presentation

- Early Warning Systems
- Localized communication
- Education and training for disaster prevention
- Development of appropriate tools

ITU- Waseda ICT Center

International Telecommunication Union For immediate release

Telephone: +41 22 730 6039 Fax: +41 22 730 593
Telephone: +41 22 730 6039

ITU to establish ICT Centre in Japan Waseda University to support ITU standardization and development initiatives

Geneva, 28 ITU to establish ICT Centre in Japan
Waseda University to support ITU standardization and development initiatives Geneva, 28 May 2003 — The International Telecommunication Union (ITU), in cooperation with Waseda University of Japan, has established the ITU-Waseda ICT Centre. The Centre will provide support to the telecommunication standardization and development activities of the ITU by providing expertise in IT networking, mobile communication, network security, digital content creation and other emerging technologies.

Collaboration with ITU

ITU
(International Telecommunication Union)
Geneva

2001. 8. 1
MOU

GITI
ITU-Waseda ICT Center
Japan

ITU-D
Telecommunication Development Bu
Toure, Director
*Education/Training

Jan.14,2003
MOU

HRD Center

Honjo Campus

ITU-T
Telecommunication Standardization Bu
Zhao, Director
*R&D/Network

Feb.24,2003
MOU

RSD Center

YRP

ITU-R
Radiocommunication Bureau
Timofeev, Director
*Radio communication

Jan.23,2004
MOU

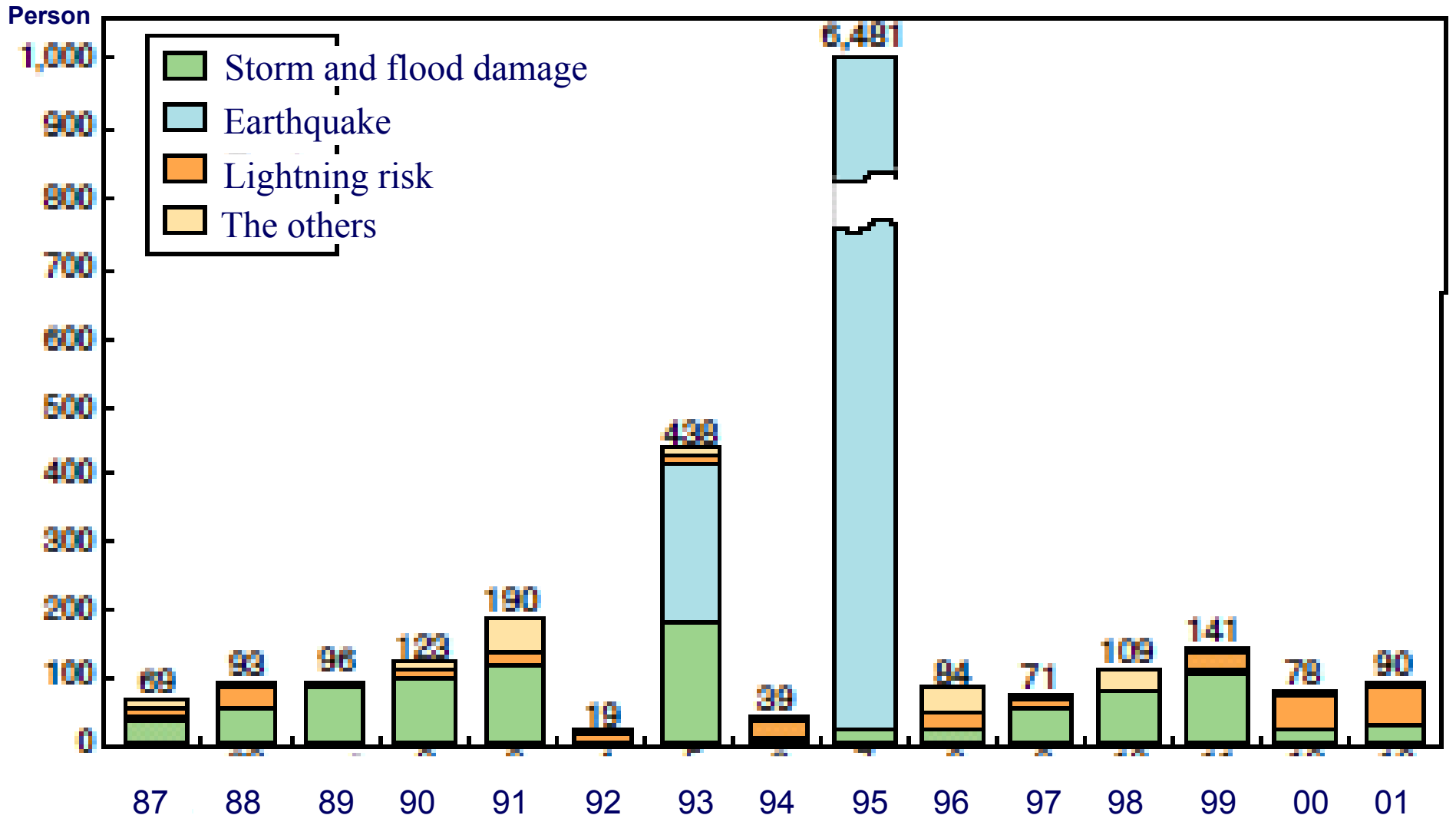
R- Center

YRP

Disasters

A. Earthquake
B. Volcano
C. Cyber Terrorism
D. Terrorism
E. Gas Attack ・ ・ ・

Natural Disasters in the Previous Decade in Japan



The graph is produced by Cabinet Office Government of Japan based on the information provided by Fire and Disaster Management Agency

Scale of Devastation
Severe Earthquakes

	Total Amount of Damages ($)	Human Damage Fatalities, Missing, Casualties (people)
Chuetsu Earthquake 2004.12.21 (reported)	About 30billion	4,600
Hanshin Awaji Earthquake 1995.5 (reported)	About 97billion	47,000
Sumatra Earthquake 2005.1.1 (reported)	About 100 billion	165,000 (now over 180,000 by some reports)

Scale of Devastation
Cyber Terrorism

Klenz Virus	$9.0 Billion
Love Letter Virus	$8.8 Billion
Code Red Worm	$2.2 Billion
SQL Slammer Worm	$0.95-1.2 Billion
Sircam Virus	$1.15 Billion
Nimda Virus	$0.64Billion

(Source: mi2g, http://www.mi2g.com/)

Sarin-Gas Attack in Japan

March 20, 1995
12 dead, about 4000 people injured

Disaster Management Tools

- Radio Communication
- Mobile phone (Voice)
- Internet with Mobile phone (Data)
- Internet with mobile phone (171)
- Telephone
- Dial for Disaster”171”
- PHS
- TV
- CATV
- PC
- Radio
- FAX
- Beeper
- Siren
- Loudspeaker van
- Voluntary disaster-prevention org
- By word of mouth

Sumatra Earthquake (Indonesia&Sri Lanka)

Warning from … a … affects to Sri Lanka
Tsunami Warning … dian Gov. on the 30th
＊Pa… mong citizens
…alt … id supply

False Alarm

Tsunami Warning: Process on the 26th

Senior officials of Ministry of Interior of India

＊Emergency contact after 1 hour from the severe earthquake
⇒Tsunami did not reach to the main land of I…

＊Air force reported to Ministry of Defense
⇒None to the headquarters of the governmen…
⇒Warning from Meteorological Department: 2 h…s later

＊**Education to citizens on earthquakes and Tsunami**

＊**Urgent establishment of Tsunami Warning System for countries in Indian Coast**

Sumatra Earthquake (Thailand)

Director General of Department of Disaster Prevention and Mitigation
- Failed to predict the risk of Tsunami
- No Observation System
- Need for more reliable early-warning system and Tsunami Observation System

Thai Meteorological Department
13 Seismographs within the country

Result of Analysis by Phone/FAX/Internet

Department of Disaster Prevention and Mitigation
Government Agencies

Suparerk, Director General of Thai Meteorological Department
- Lack of warning
- No information of earthquake from Government agencies
- Absence of top-down orders
- Emergency contact: 1 hour after Tsunami occurred

Critical Failure
Delay of Pre-warning of Tsunami

Problems 1

Radio Communication	●Limited information ●Sounds easily cancel each other ●Used only with sufficient electric power supply ●Unsuitable for the Deaf and the elderly who have weak hearing
Mobile Phone Internet (Voice・Data)	● Limited battery ● No use if the base stations are attacked ● Unavailable in case of jams or disconnection of aerial lines
PC	●Need time to start up
Telephone	●Unavailable in case of jams or disconnection of aerial lines

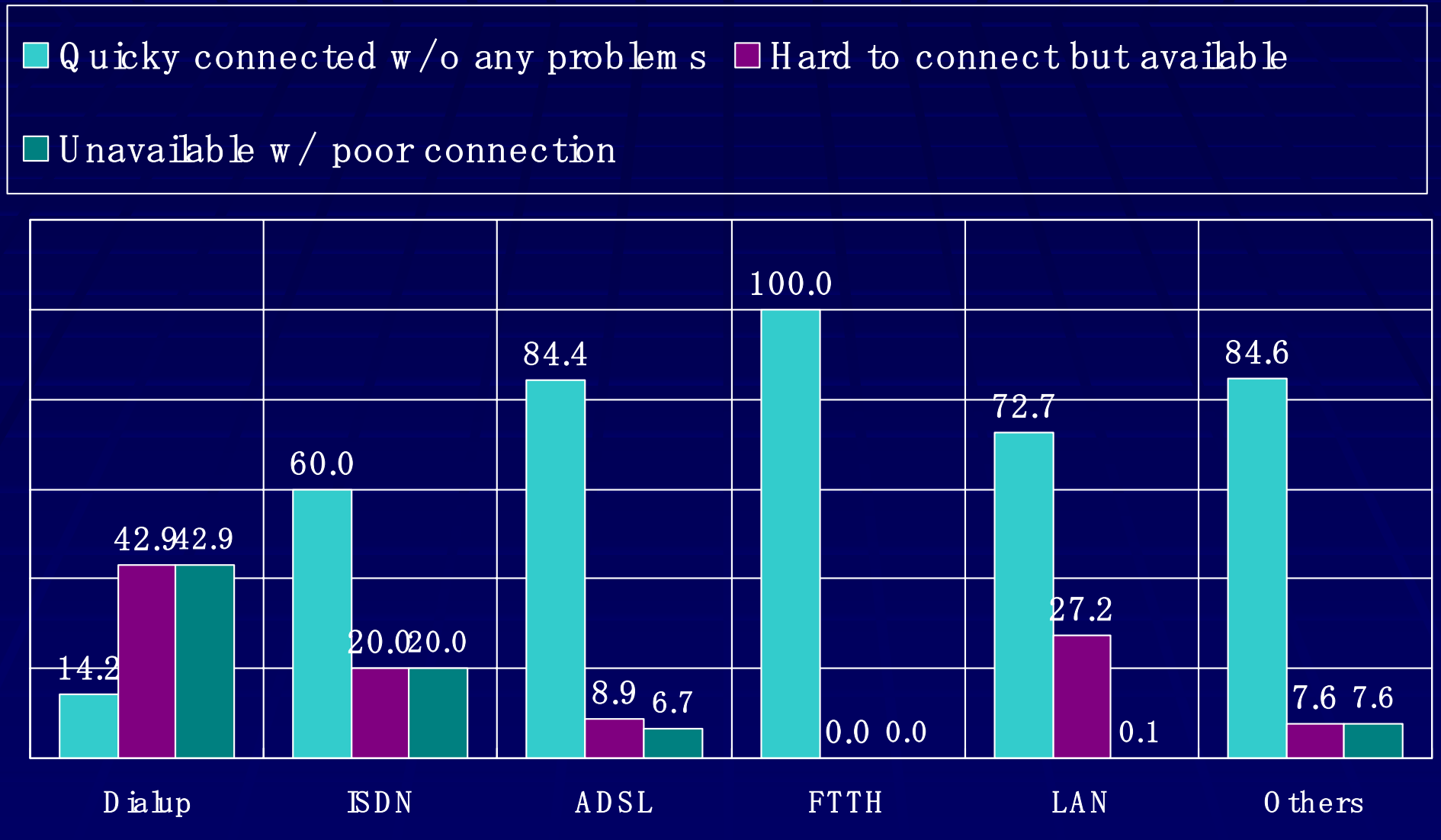
Problems 2

“171“ Dial# for Disaster	●Time difference in communication between devastated area and un-devastated area ●Need of service cognition to users in advance ●Just started multilingual service
PHS	●Strong in disasters, but few users
TV	●Worse the devastation is, the lower it performs
FAX	●Risk of spreading devastation due to fail of noticing ●Confirmation needed for end of tranmission

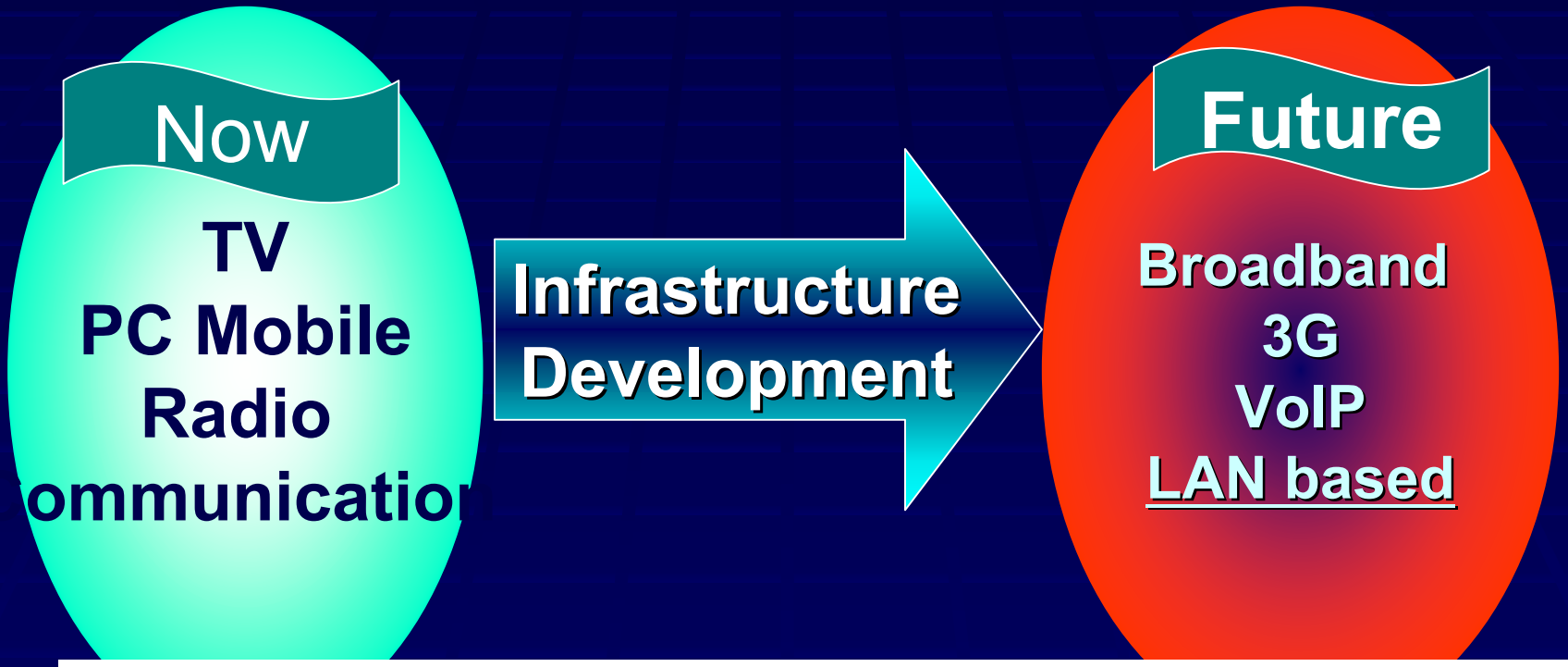
Problems 3

Beeper	●Strong in disasters, but few users
Siren	●Difficult to catch in heavy rains ●Different types of siren in each region
Loudspeaker van	●Unreachable to citizens who are outside of its driving area ●Highly depends on the road conditions
Voluntary organization	●Sound local community is necessary ●Difficult to manage in under - populated areas ●Rich manpower is necessary
By word of mouth	●No proof for validity of the information ●Overflow of information

Connectivity of Network Lines
Broadband performed best in terms of connectivity
Chuetsu Earthquake



The most effective ways in Disasters



Existing communication tools can not sufficiently respond to the Disasters

Combination of the Old&New→Building Infrastructure→ Switching to New Communication Tools

Collaboration among Government-University-Business

the Activities between Government and e-Municipality, Japan

Assessing Activities of Japanese Government

Prevention of Disasters /Emergency Management /

Regional Recovery Process

A) Arrangement of Wide Area Control Center
B) Improvement on National Disaster Information System
C) Convening “The United Nations World Conference on Disaster Reduction”
D) Review of “Recovery Support for Disaster Victims Act”
E) Establishment of Tax-reductible System for Earthquake Insurance etc.
F) Extension of Special Measures on Taxation Standards of Assets Prepared for Earthquakes

Activities of Kanagawa Pref.

A) Sharing information by available tools corresponded to each stage of disaster
B) Increasing available tools in disasters
C) Collecting and arranging information of the disaster site (function as a filter)
D) Putting priorities in information, and understanding the demands of citizens (victims)

Activities of Yokosuka City

Yokosuka City, Kanagawa Pref.:

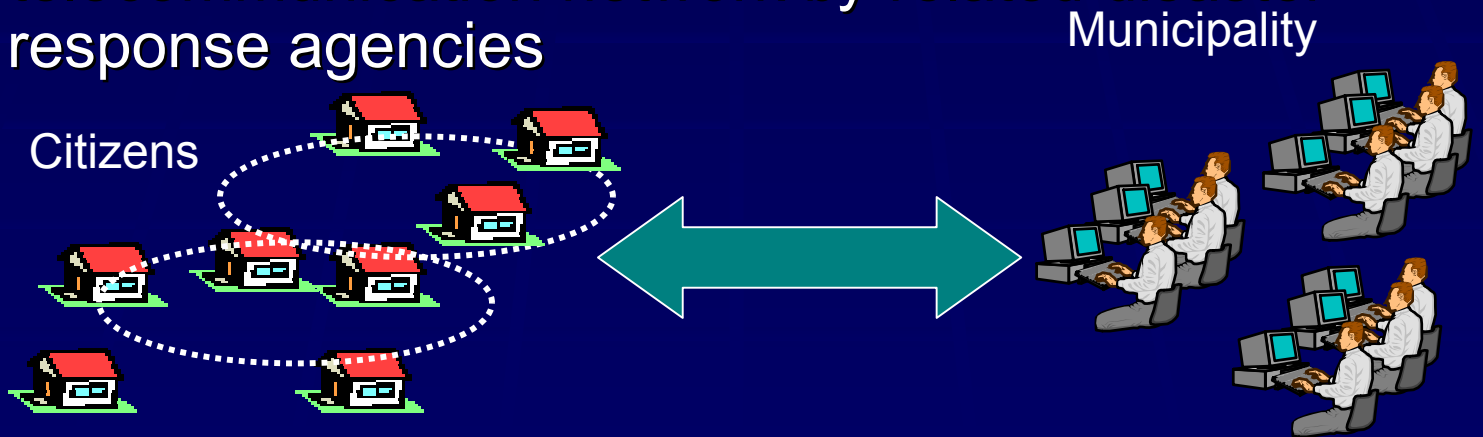
The best e-Municipality in Japan

Building Disaster Telecommunication & IT Network

A) Improvement on Early Disaster Warning System

B) Prompt communication network for rescuing evacuees, Effective operation of refugees

C) Collecting and rearranging information, utilizing the telecommunication network by related disaster response agencies



Yokosuka City Navi

Among various information services provided on Yokosuka City Website, ”Yokosuka City Navi” is one of the information delivery service to mobile phones via internet, which offers carefully selected and popular information.

As for the contents, there are tourist information, information for various administrative procedures, or updates on daily events and so on.

Facility information

With a precise map

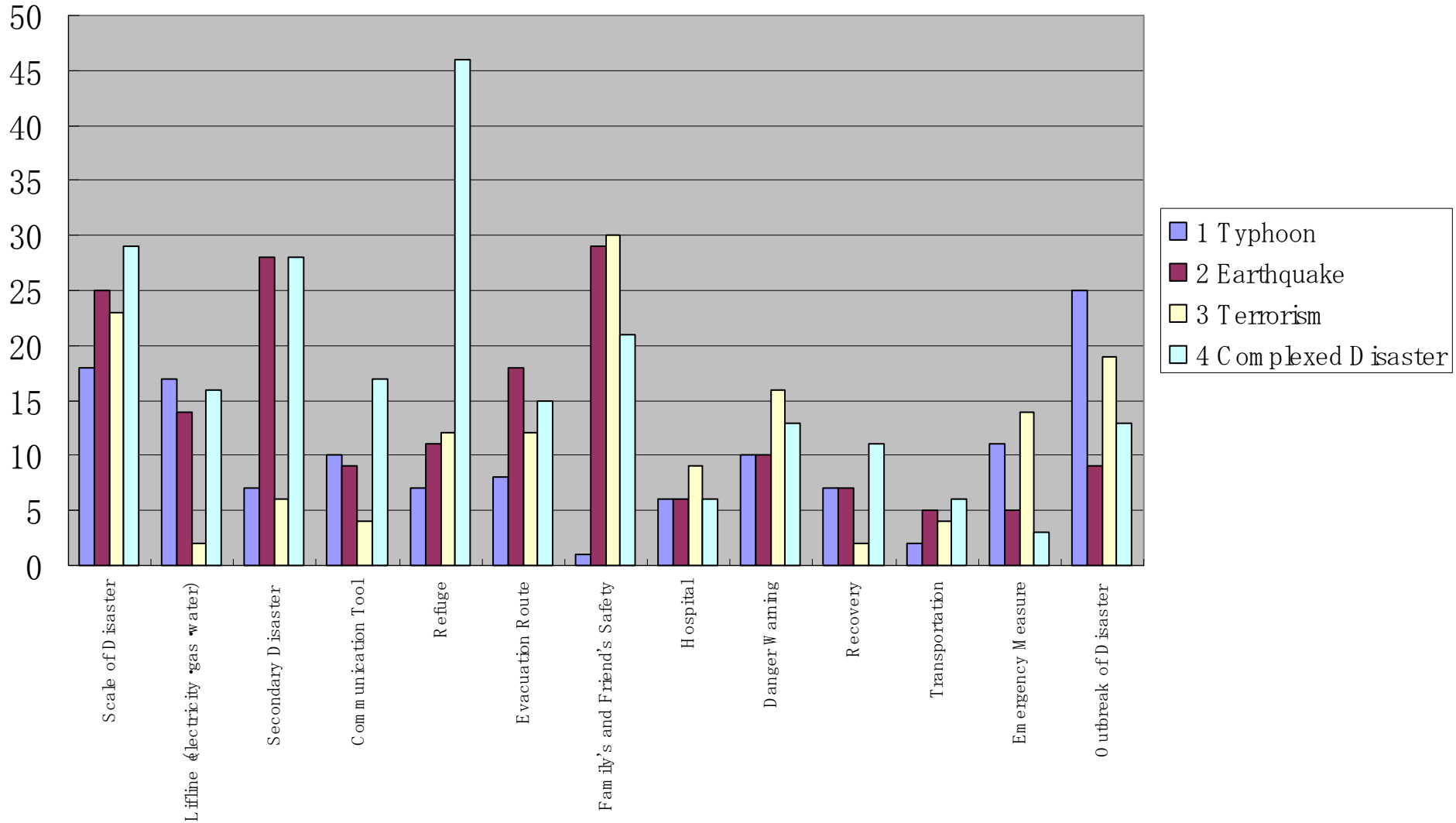
Especially, “Map&Location Information Service for Mobile Phones” is quite unique and convenient that it provides not only the address or TEL number of public facilities in the city but also the map and how to access to the location.

Survey on Disaster Prevention Management in Yokosuka City, Kanagawa Pref.

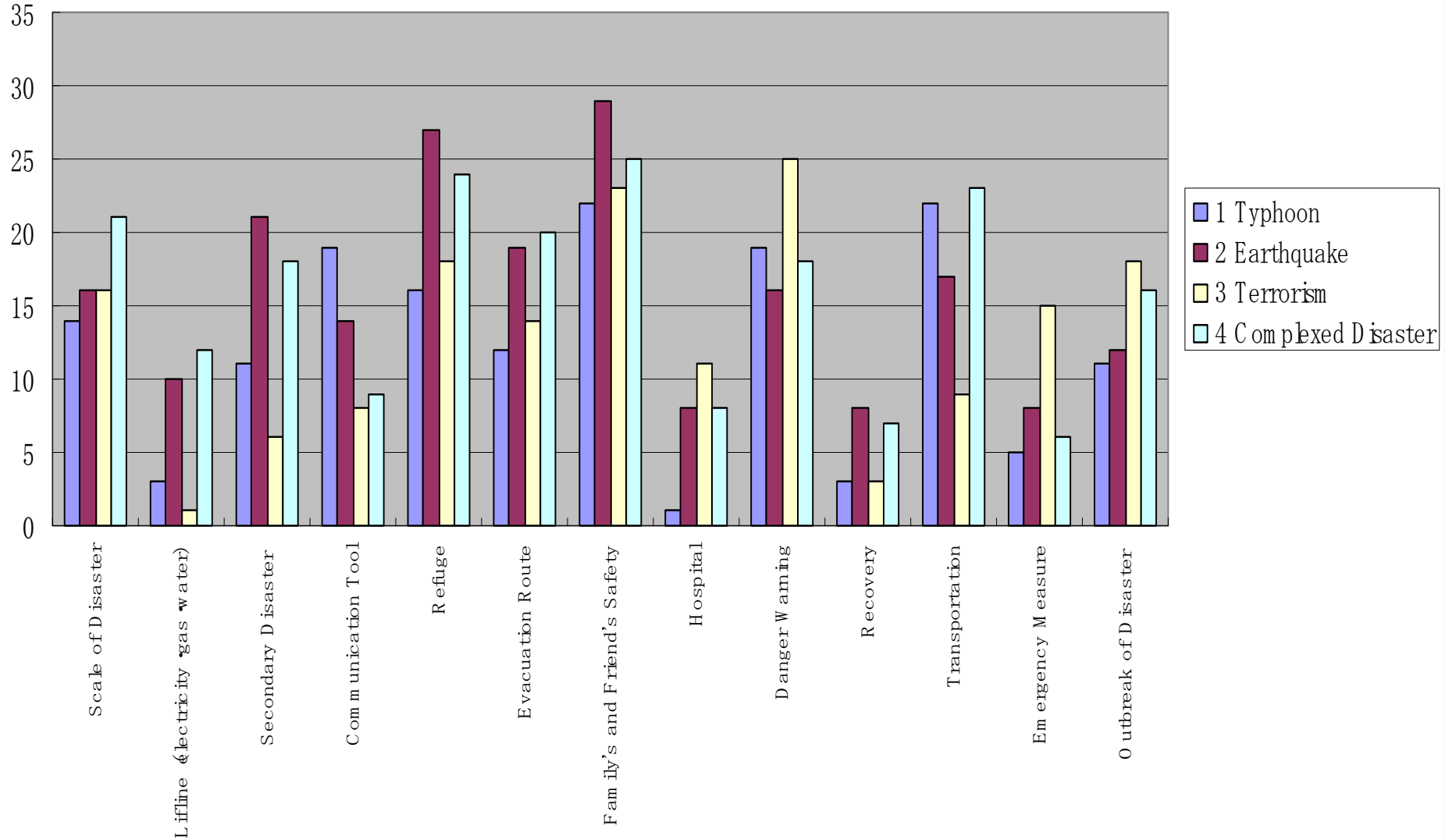
Evaluation on the results of questionnaire to Yokosuka citizens and companies

In cooperation with City Government of Yokosuka and Yokosuka Chamber of Commerce and Industry

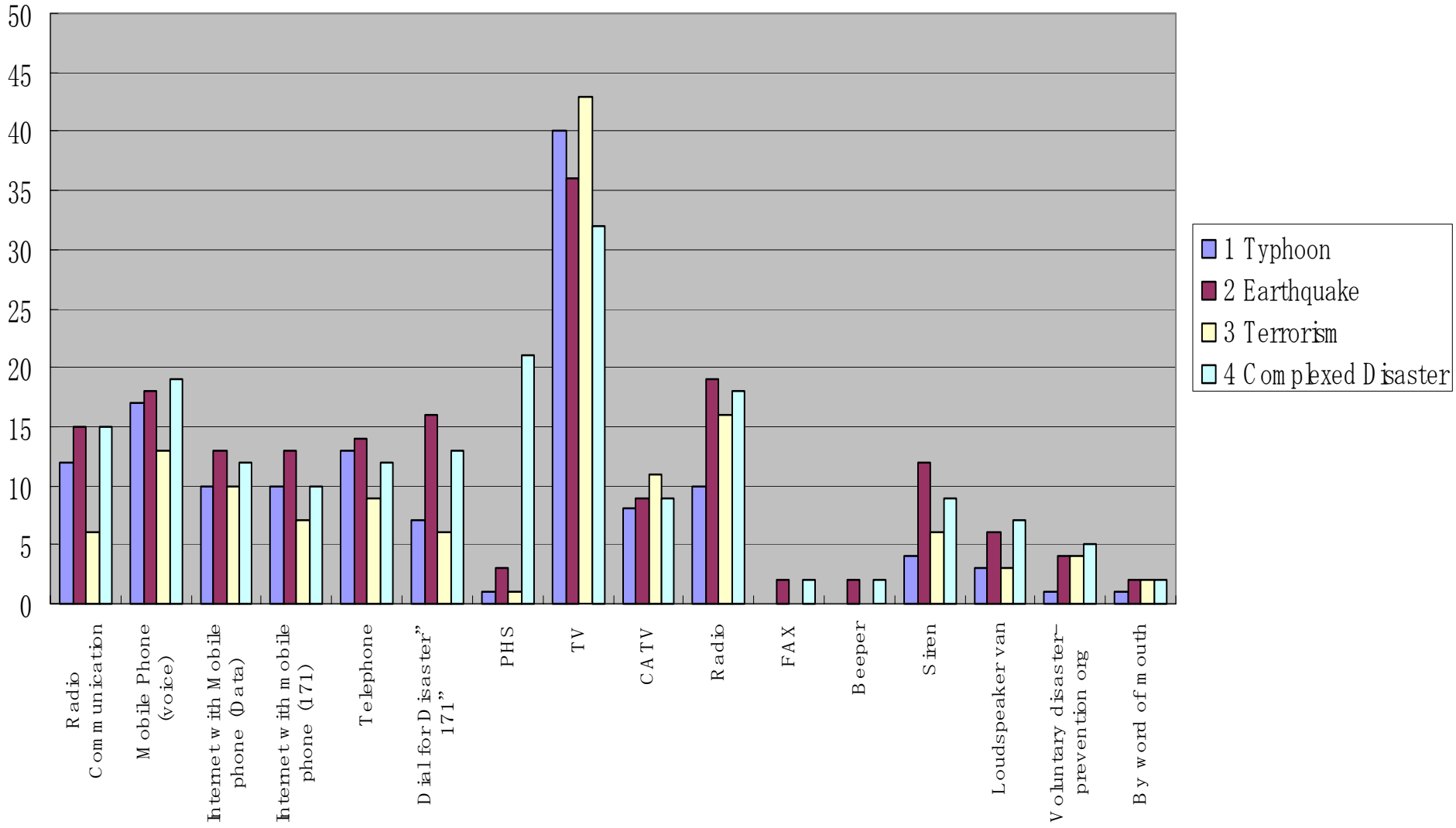
Which information is most necessary for you in case of severe typhoon, earthquake, terrorism attack or new type of multiple disaster? （If you are at home, eating or sleeping etc.）



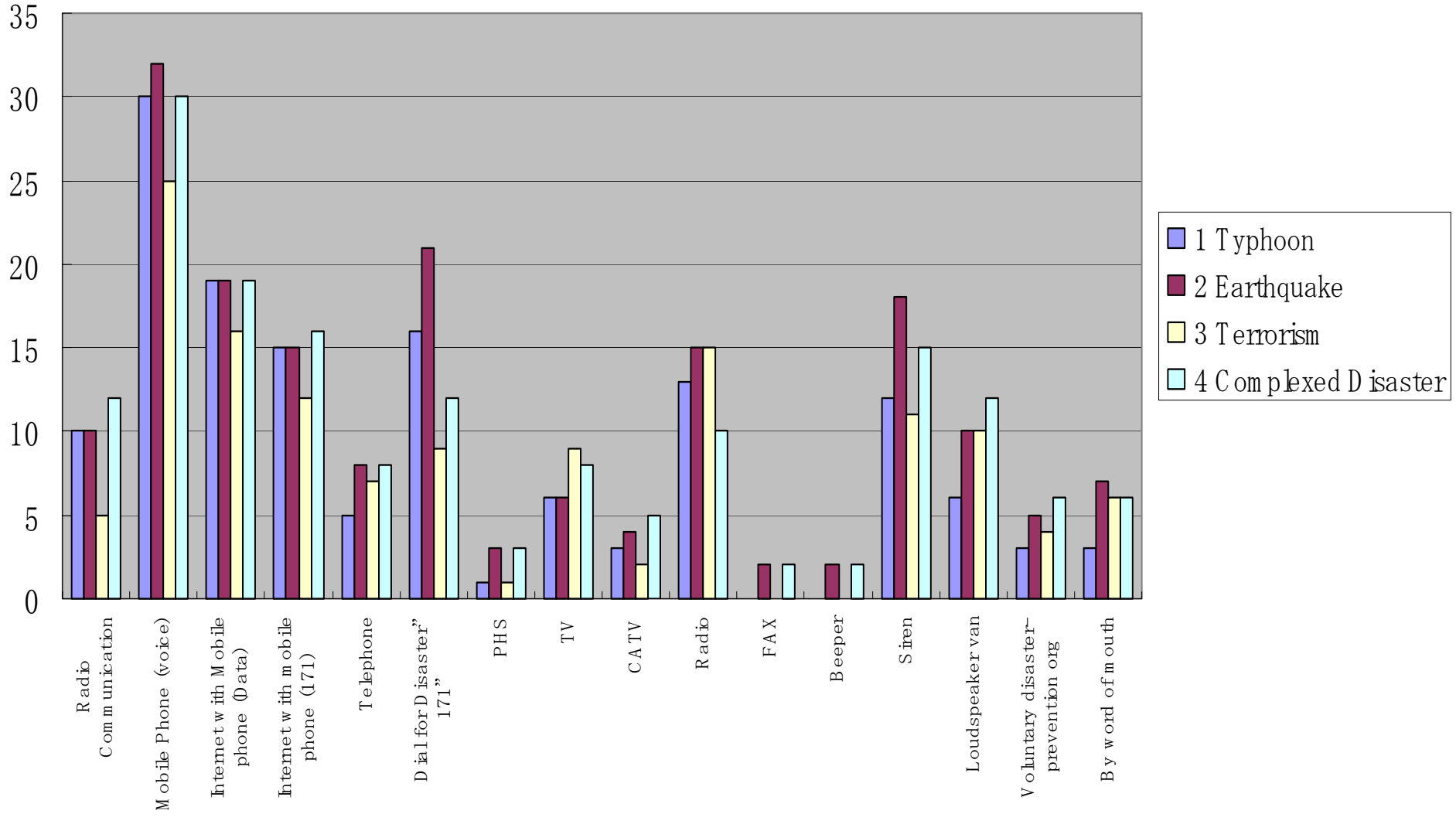
Which information is most necessary for you in case of severe typhoon, earthquake, terrorism attack or new type of multiple disaster? （If you are outside the home ； on the way for your office/ at office/ outdoor etc）



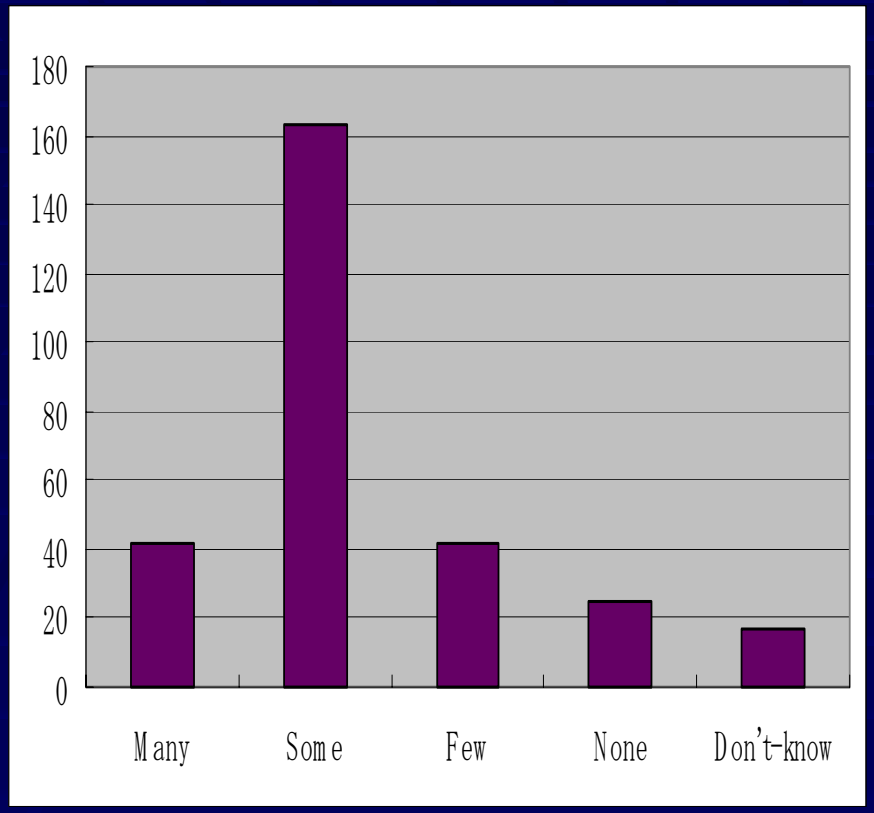
Which tool will you use to collect necessary information in case of following severe disasters? (If you are at home, eating or sleeping etc.)



Which tool will you use to collect necessary information in case of following severe disasters?
(If you are outside the home ; on the way for your office/ at office/ outdoor etc.)

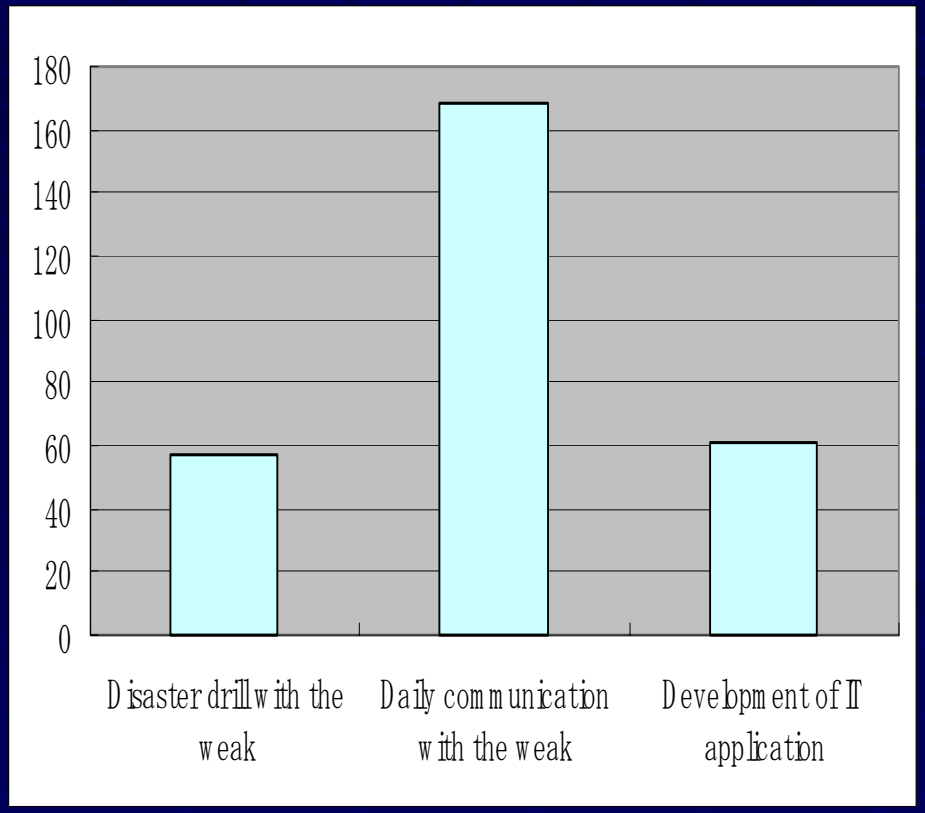


Is there any “the weak” in your neighborhood?



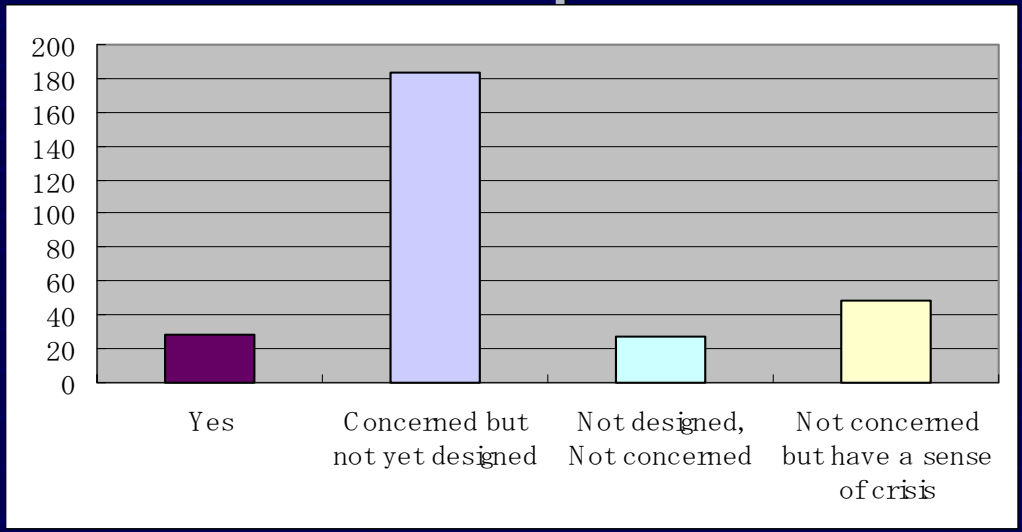
- **Most of the citizens in Yokosuka City are familiar with the weak in their neighborhood and keep an eye on them.**

What is necessary for “the weak”?



- **People attach importance on communication with the weak.**

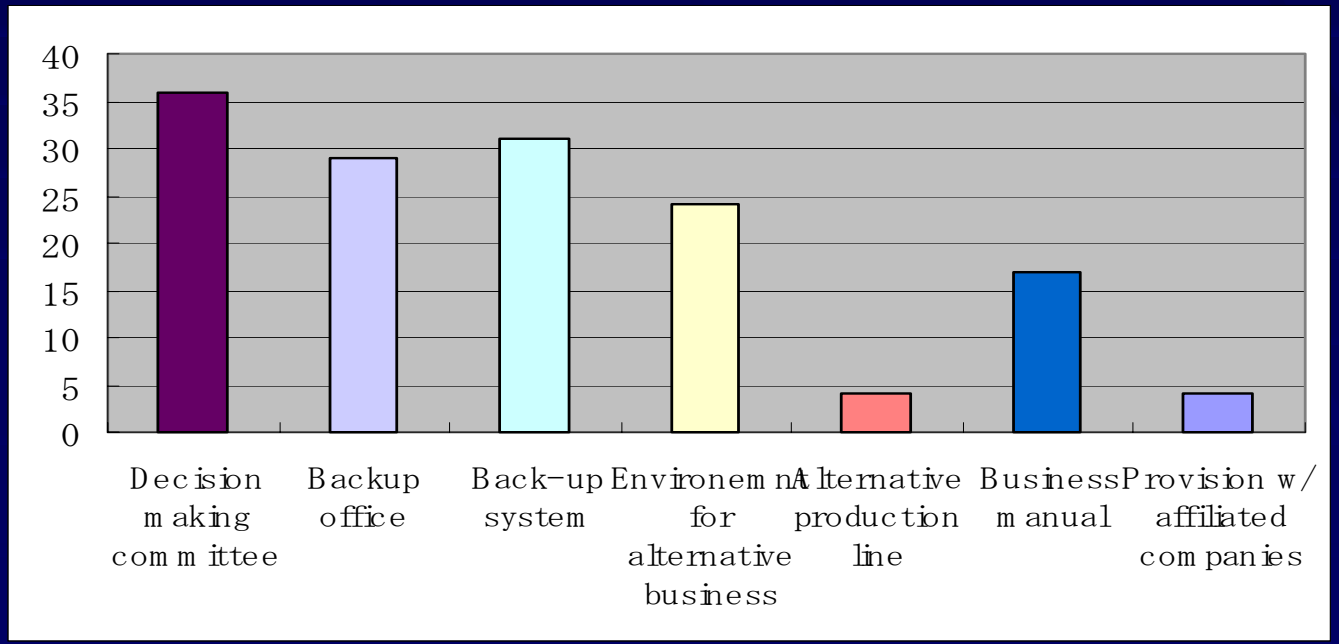
BCP (Business Continuity Plan) in Companies

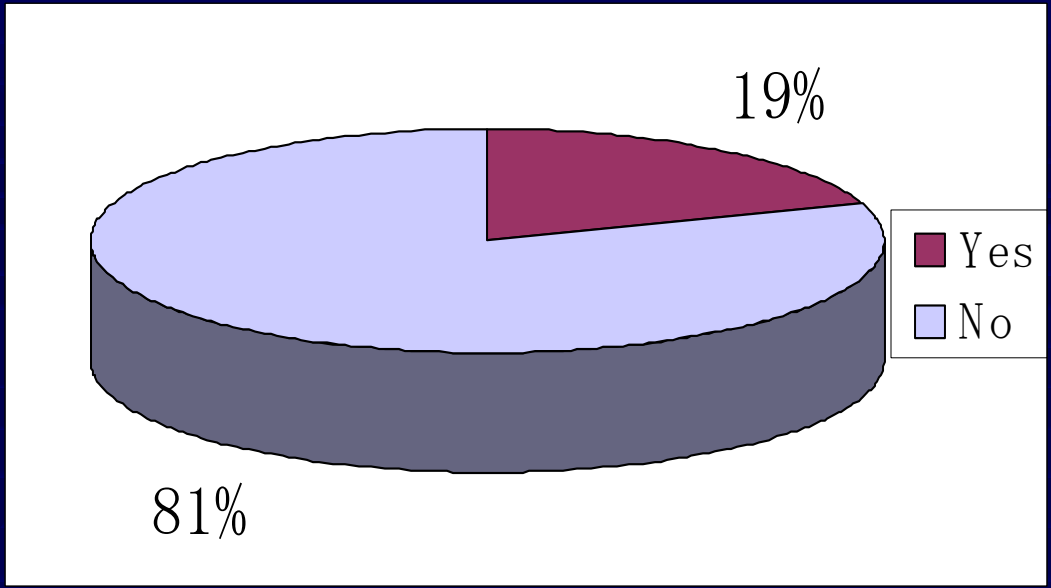


- The ratio of companies which have already designed BCP in Yokosuka City is below Japan's average.

Actions of BCP

- Emphasizing on decision making committee, and backup office and system

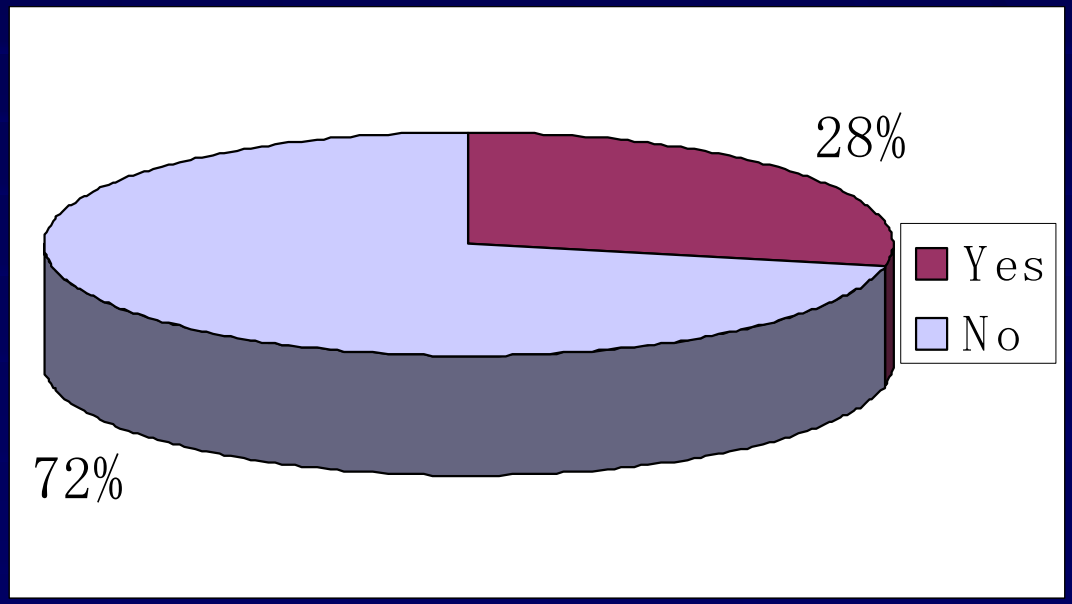




CIO in Companies

- **Only 19% of companies in Yokosuka City have designated CIOs. Their most expected role is to increase the efficiency of operation.**

IT Staff Training



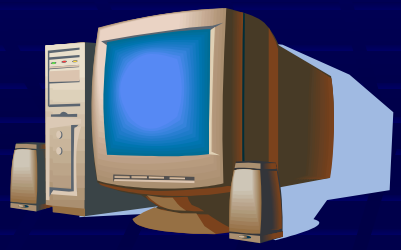
Activities of MESA

Broadband Mobility for Emergency and Safety Applications

Project MESA –
a collaborative effort for next-generation mobile broadband for PPDR activities/market.

- Cooperative standards partnership between TIA and ETSI brings together PPDR agencies, equipment users, industry/standards bodies and researchers.

Project MESA



Collaboration among Government-University-Business Activities

Solution Business by NTT Data

High-accuracy GPS Solution Service

- GPS (Global Positioning System)
- High-accuracy Monitoring System
- Able to monitor crustal movements which cause severe earthquakes and volcano activities

Emergency Command Tool "NoKeos TM"

- Function of supporting decision making process, providing and sharing information, drawing up Scenario, recording data transaction

Solution Business by NTT DoCoMo

Message Dial Service for Disaster

- Used on any disasters (earthquakes, eruptions or downpours etc.)
- Voice mail service to communicate with their families, and acquaintances
- Dial “171” and leave or playback the messages

Message Board Service for Disaster by i-Mode

- Used on disaster such as earthquakes with a magnitude over 6
- i-Mode users are able to register their safety information and etc.

Solution Business by NEC

Radio Communication Service

- Able for usual use as a main frame system for performing daily administrative work
- In case of disaster, a communication route is selected from wired or ground microwave or satellite telecommunication systems

Audio-visual Monitoring Solution

- Solution targeted for companies in building management business or security service
- Able to real-time monitoring the images taken by monitoring cameras using 3G mobile handsets or PCs from remote areas
- Able to link to a sensor for warning in case of some change in the image connect with LAN, WAN, mobile network or mobile LAN

Factors of Devastation Expansion

- Lack of risk awareness for disaster
- Lack of the perfect communication system
- Lack of focus on the weak
- Countermeasures against new multiple disaster
- Lack of resources for disaster
- Incomplete Global Standard

8 Issues and 4 Key Statements for Disaster Reduction

Solutions & Recommendations

- Establishment of FEMA(USA) worldwide
- Establishment of global standard aimed for disaster reduction system & tools
- Development of Appropriate Applications for the New Type of Disasters
- The essential role of ITU for Emergency Telecom
- Role of university on Disaster Reduction
- e-University Network in ICT HRD for DR

Solutions & Recommendations

- HRD for CIO (Chief Information Officer)
  - Collaboration among Central Government, Municipalities and Citizens
  - Borderless disaster management
  - Establishment of global CIO council
  - Promotion of disaster education in university
  - Designation of CIO in both each government and municipality, and private sectors
  - Establishment of new rule for emergency telecommunications

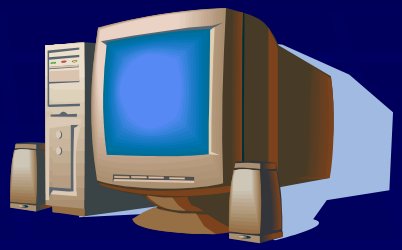
Collaboration among

Government – University - Business

The Role of University on DR

e - University network in HRD for ICT/DR

education/training/R&D/resources



Activities of ITU-Waseda ICT Center

Research on Public Safety

e-University Network in HRD for e-Gov

HRD for CIO
(Chief Information Officer)

e-Government

Graduate School [CIO / IT course] at Waseda University,Japan

- GITS is Japan's first graduate school to offer an education/training program for CIO (Chief Information Officer) and ICT experts.
- GITS is an interdisciplinary graduate school integrating ICT, multimedia technologies, and social sciences
- CIO/IT course also emphasizes the priority of developing key personnel to deal with Disaster Reduction.

Thank you very much

Contact to:
Naoko Iwasaki
ITU-Waseda ICT Center
e-mail: obi.waseda@waseda.jp
Web: http://www.obi.giti.waseda.ac.jp/e_gov/

Office
104 29-7 Bldg. Waseda University, Nishi Waseda
Shinjuku-ku, Tokyo, JAPAN, 169-0051
TEL/FAX: +81 3 5286 8032