Peranan ICT Dalam Pengelolaan Wilayah Rawan Bencana Untuk Antisipasi Dan Kesiapsiagaan

KELOMPOK II
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POKOK BAHASAN

- PENDAHULUAN
  - DISASTER WARNING SYSTEMS
  - GEOGRAPHIC INFORMATION SYSTEM (GIS)
  - MANAJEMEN TEKNOLOGI INFORMASI

PENDAHULUAN

- Teknologi informasi (TI) merupakan sebuah aplikasi yang dapat kita gunakan untuk membantu didalam berbagai masalah terutama Bencana Alam.
- Prosedur penanganan bencana saat ini banyak yang tidak efektif atau bahkan salah sasaran semua itu disebabkan informasi yang terlambat masuk terlebih tidak akurat

Cont...

- Peran ICT pada permasalahan ini sangat penting dan menjadi sarana yang vital untuk membantu dalam proses pengambilan keputusan
- Teknologi Informasi tidak mampu mencegah terjadinya bencana namun dengan teknologi informasi kita dapat meminimalkan segala bentuk kerugian, korban jiwa, dan memberikan tindakan-tindakan yang efektif dan efisien

- US$25 billion-US$100 billion
  - US$75 billion
  - (according to the US
  - National Hurricane Center)

DISASTER WARNING SYSTEMS

- A warning can be defined as the communication of information about a hazard or threat to apopulation at risk, in order for them to take appropriate actions to mitigate any potentially negative impacts on themselves, those in their care and their property (Samarajiva et al., 2005).

Cont...

- *Early warning system* merupakan subsistem awal dalam kegiatan kesiapsiagaan, agar masyarakan dan jajaran kesehatan di provinsi dan kabupaten/kota terutama pada daerah potensi bencana dapat lebih mempersiapkan diri menghadapi kemungkinan terjadinya bencana
- Sistem Peringatan Dini adalah system (rangkaian proses) pengumpulan dan analisis data serta desiminasi informasi tentang keadaan darurat atau kedaruratan.

The goal of early warning system

- Meningkatnya kualitas informasi secara lintas program dan lintas sektor dalam penanggulangan bencana.
- Meningkatnya pengetahuan, sikap dan perilaku masyarakat terhadap adanya ancaman dan bahaya.
- Meningkatnya peran serta lembaga Swadaya Masyarakat (LSM)/Non Government Organization (NGO’s)

Cont…

- The goal of early public warning is to ensure to the greatest extent possible that the hazard does not become a disaster. Such warnings must be unambiguous, communicate the risks succinctly and provide necessary guidance

Cont...

It is important to note that disaster warning is indeed a system :

- not a singular technology, constituting the identification, detection and risk assessment of the hazard, the accurate identification of the vulnerability of a population at risk
- finally, the communication of information about the threat to the vulnerable population in sufficient time and clarity so that they can take action to avert negative consequences

Key Players in Disaster Warning

- Communities
- Local governments
- National governments
- Regional institutions and organizations
- International bodies
- Non-governmental organizations (NGOs)
- The private sector
- The media
- The scientific community

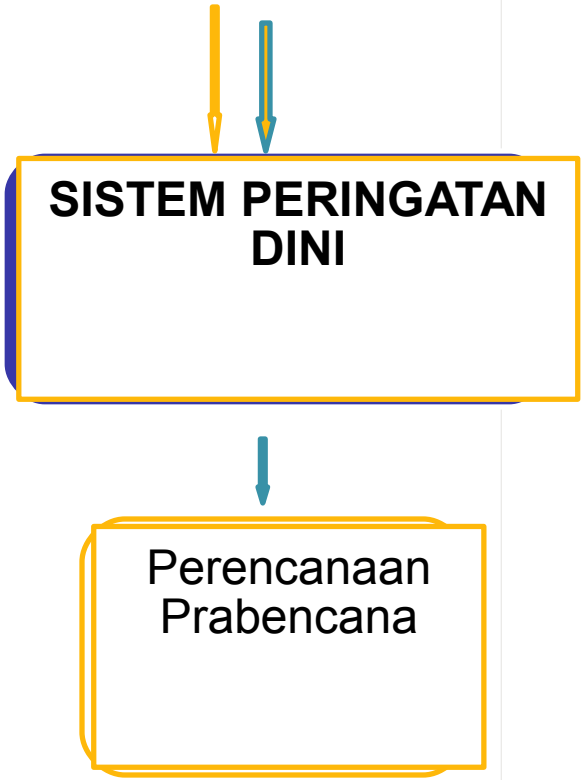
KERANGKA KERJA KONSEPTUAL

SATKORLAK PBP PROV SATLAK PBP KAB/KOTA	MASYARAKAT	KESIAPSIAGAAN	RESPON
PEMBUAT KEPUTUSAN	?? Pengetahuan ?? Sikap ?? Perilaku	PERINGATAN DINI	

DETERMINANT KONSEPTUAL EFEKTIFITAS SISTEM PERINGATAN DINI

?? Tepat sasaran
?? Tepat Waktu
?? Jelas Dan Dimengerti
?? Penyampaian
- Alternatif
- Metode

?? Peringatan Jk Pjg
?? Peringatan Jk Pdk
?? Tanpa Peringatan



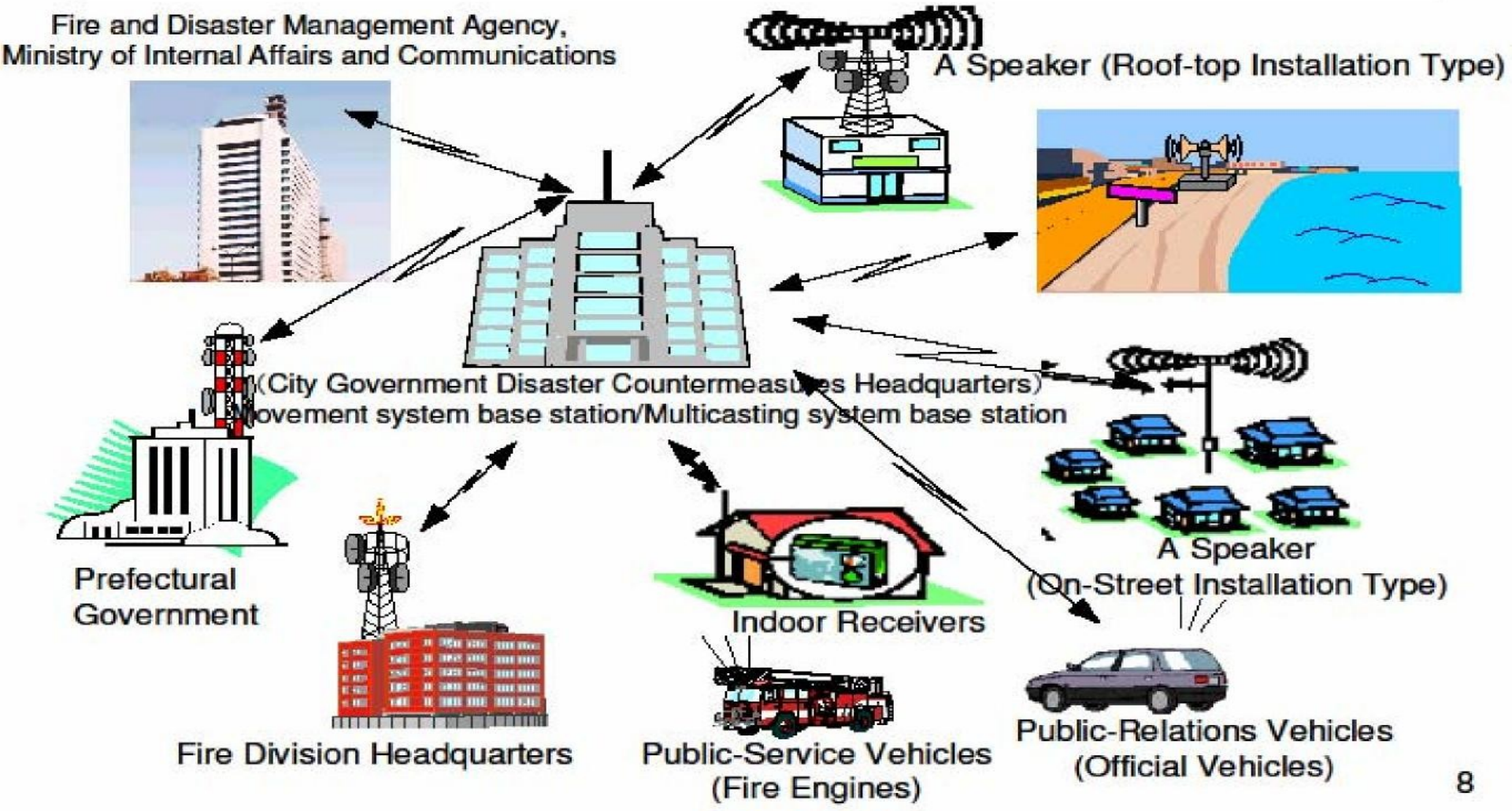
Tenggang Waktu Peringatan

Channels Used for Disaster Warning

- Radio and Television
- Telephone (Fixed and Mobile)
- Short Message Service
- Cell Broadcasting
- Satellite Radio
- Internet/Email
- Sirens

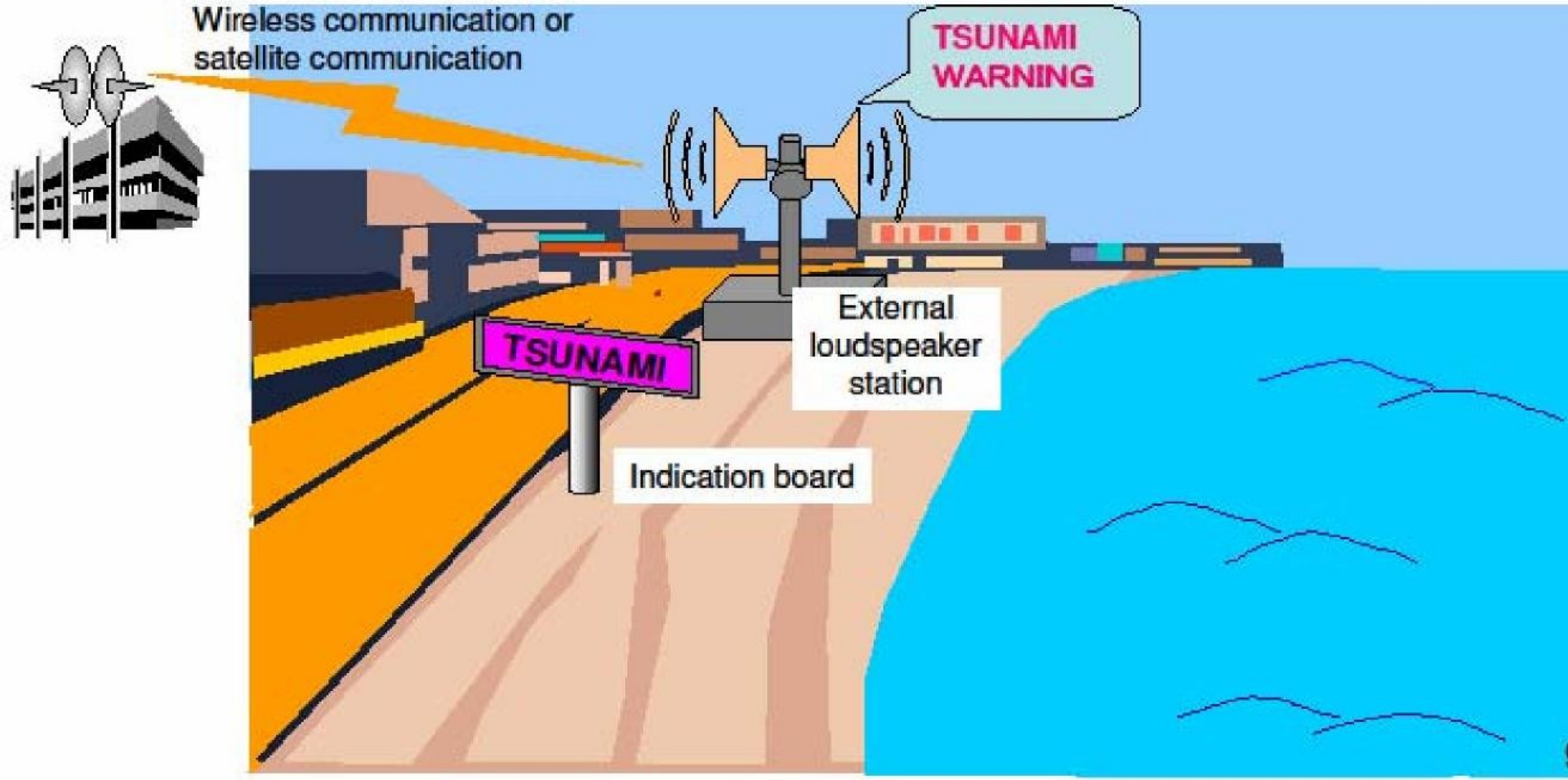
Japanese Examples for Disaster Communications

Tsunami Warning System in Japan
(1) Disaster Management Radio



Tsunami Warning System in Japan
(2) Reporting and Notification by Loudspeakers and Sirens

- Using loudspeakers is an effective measure to catch the attention of people in a specific area.
- Announcement using loudspeakers can transmit information from 2 to 300 m; using a siren, it can be transmitted from 1 to 2 km.

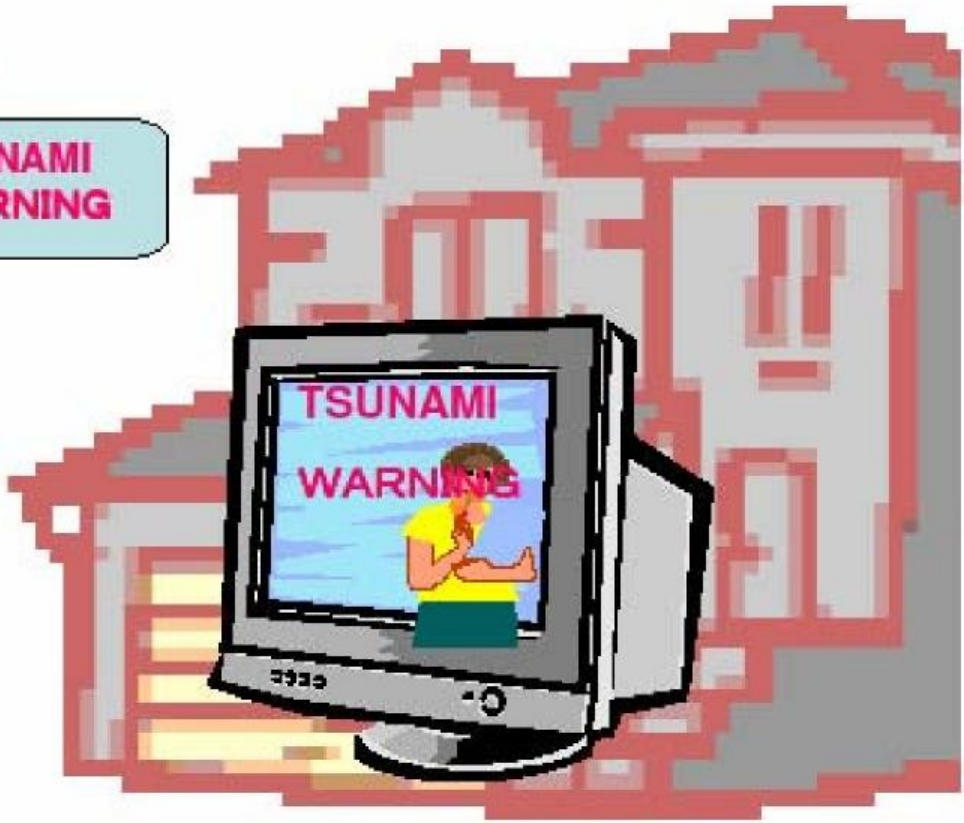


Tsunami Warning System in Japan
(3) Broadcasting

- Broadcasting is the most effective method to transmit information over a wide area
- It is important to prepare a system that can report disasters and provide notification by disaster warnings on TV or by a news bulletin on TV/radio.

Broadcasting station

Radio

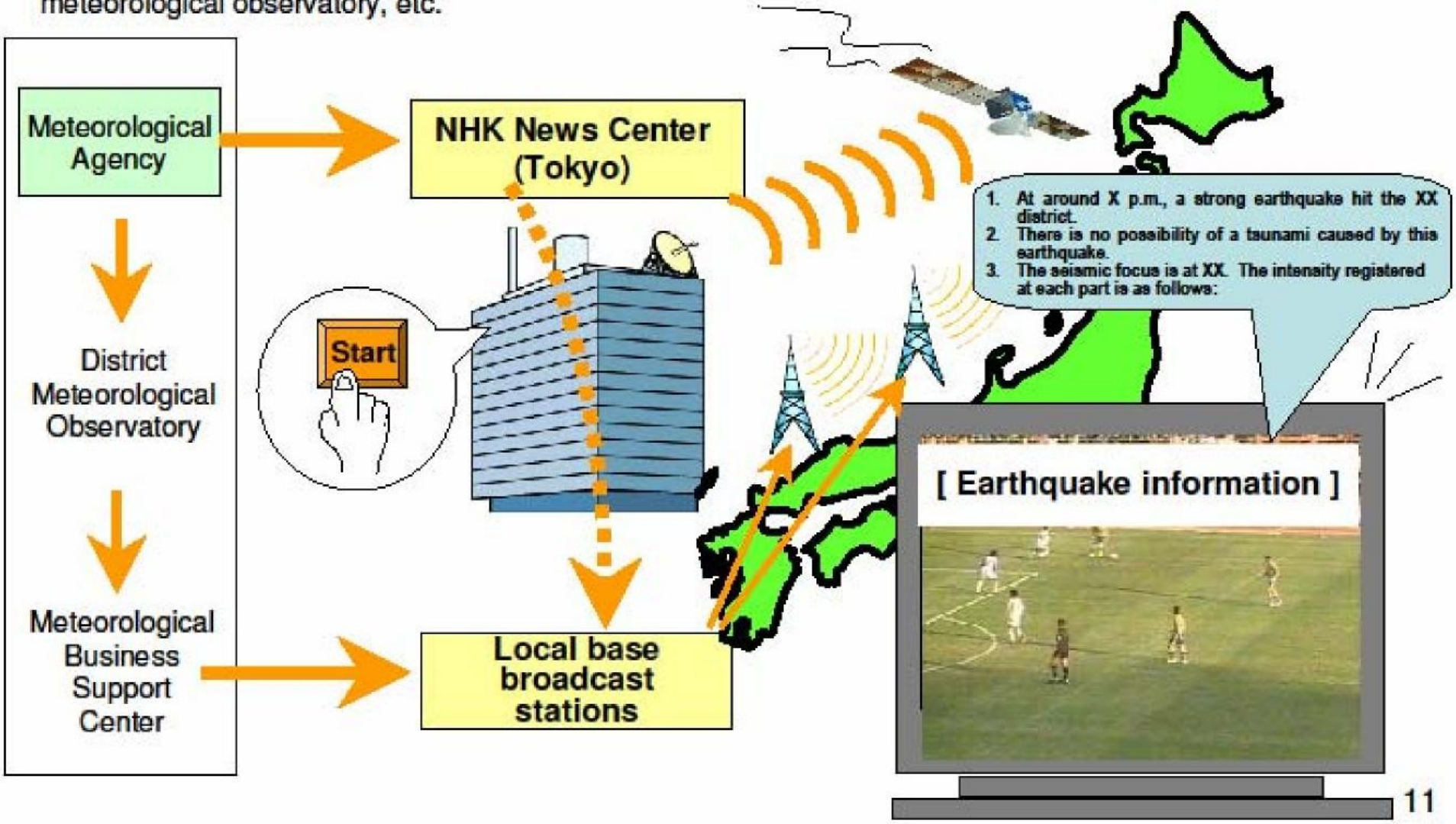


TV

Outline of Early Earthquake and Tsunami Warning Systems by NHK*

* Broadcasting Culture Research Institute in Japan

- When an earthquake occurs, the Meteorological Agency communicates the information to the NHK News Center. At the same time, the information is communicated to local base broadcast stations via the district meteorological observatory, etc.



Tabe
2: Radio Communication Media Used in D

Table 3: Comparison of Different Communication Channels Used in Disaster Warning

TAHAP ALUR INFORMASI PADA

- Sumber Informasi
  - Peringatan Dini : - sumber biasa - sumber khusus
  - Penyebar luasan : - penyuluhan - telepon/telex/fax
    - radio/TV
  - Penerima dan Pencatatan - pusat informasi
  - Peragaan/ekspose/display : - peta - papan praga
    - proyeksi visual
  - Penilaian : - individu

LANGKAH – LANGKAH DALAM *EARLY WARNING SYSTEM*

- **Tahap Persiapan (Penilaian Resiko)**

b. Pengumpulan data

c. Analisa data

d. Peragaan/Display Pemetaan daerah potensi

e. Diseminasi informasi

Cont...

- **Pelaksanaan peringatan dini**

b. Penerimaan informasi

c. Diseminasi informasi (sudah ada hazard). Penyebar luasan informasi tentang adanya ancaman bencana

d. Penerimaan dan pencatatan

e. Penilaian/analisis

f. Penetapan peringatan dini

Cont...

Pelaksanaan Tindak Lanjut (rencana kontijensi)

- Tindak lanjut penggunaan informasi peringatan dini adalah untuk menyusun rencana kontijensi.
- Aspek–aspek yang perlu dipertimbangkan dalam melakukan rencana tindak lanjut adalah

d. Tahap pra bencana

e. Berdasarkan scenario yang ditetapkan

f. Keterlibatan mitra kerja

g. Fokus perencanaan berdasarkan pengembangan scenario

h. Jadwal waktu yang mengambang (tidak tetap)

GEOGRAPHIC INFORMATION SYSTEM (GIS)

- GIS can be defined as a system of hardware and software used for storage, retrieval, mapping and analysis of geographic data

The use of GIS in different phases in disaster

- ***Planning***
- ***Mitigation***
- ***Preparedness***

PLANNING

- Locating and identifying potential problems is a core requirement in disaster management.
- Using a GIS, it is possible to pinpoint hazard trends and start to evaluate the consequences of potential emergencies or disasters

MITIGATION

- After potential emergency situations are identified, mitigation needs can be addressed
- This process involves analysing the developments in the immediate aftermath of a disaster, evaluating the damage and determining what facilities are required to be reinforced for construction or relocation purposes

Cont…

- Mitigation may also include implementing legislation that prevents building structures in areas prone to earthquake, flood or tsunami

Preparedness

- During the preparedness and response phases, GIS can accurately support better response planning in areas such as determining evacuation routes or locating vulnerable infrastructure and vital lifelines, etc.
- It also supports logistical planning to be able to provide relief supplies by displaying previously available information on roads, bridges, airports, railway and port conditions and limitations

Manajemen Teknologi Informasi

- Merupakan tata kelola manajerial yang menggunakan perangkat teknologi informasi dalam prosesnya

Apa ciri khas manajemen teknologi informasi:

- Terkoneksi
- Serba cepat
- Terintegrasi

Bagaimana peran manajemen teknologi informasi berkaitan

- Deteksi dini/*early warning syste*m
- Pemetaan.
- Koordinasi.

TERIMAKSIH

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