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Existing Communication System Capacity for Tsunami Warning Disseminations

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Existing Communication Technologies- Types

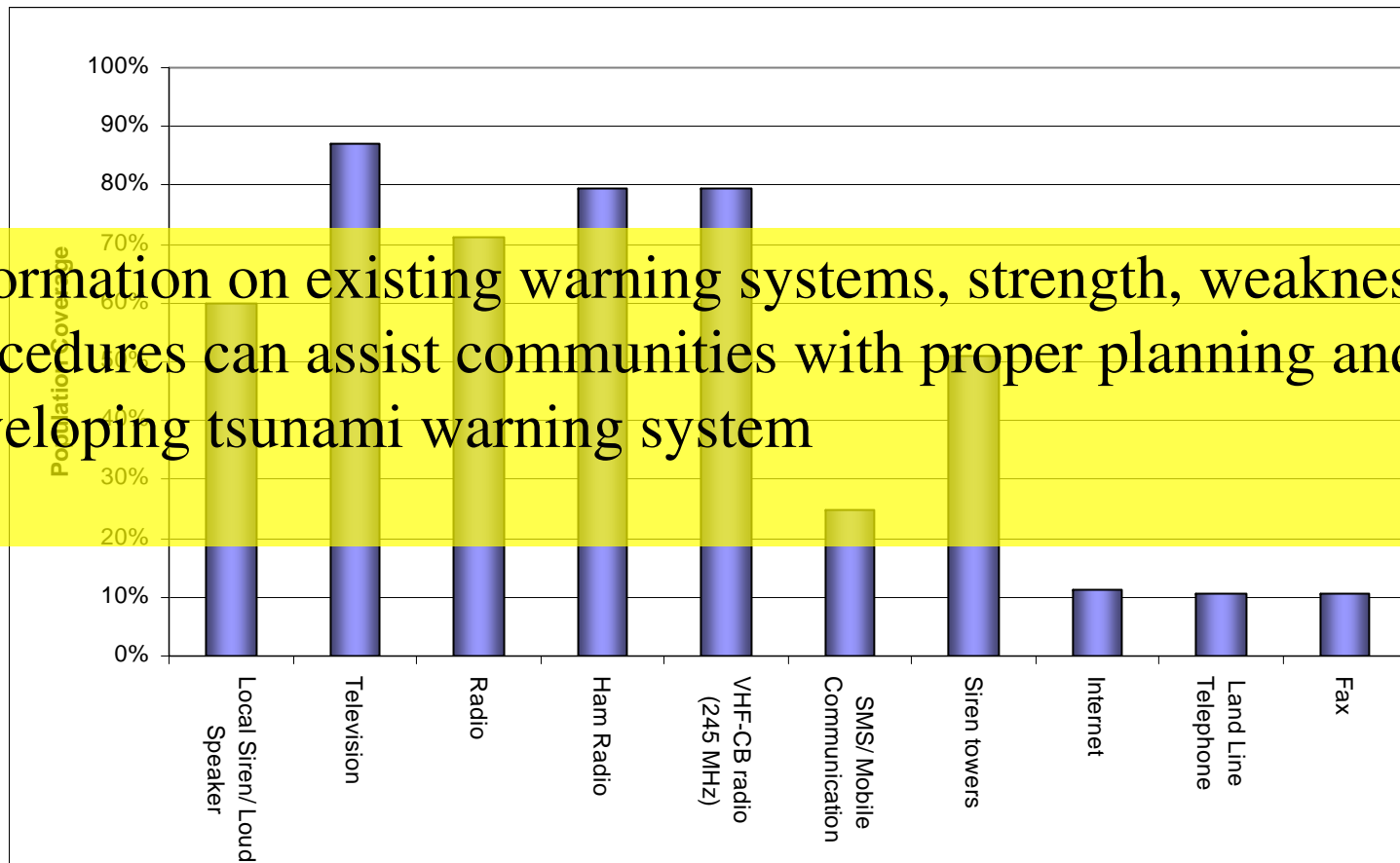
- **Broadcasting systems:**
 - ♦ Tsunami Warning Towers/ ICT Tower
 - ♦ Announcement Tower/ Loud Speakers
 - ♦ Provincial radio broadcasting
 - ♦ Amateur radio
 - ♦ VHF/HF radios
 - ♦ Police Car/ Micro phone, mosque, temple
 - ♦ Indigenous (e.g.. bamboo stick, Drum beating)
- **Telecommunication systems:**
 - ♦ Land line phone
 - ♦ SMS/ Mobile
 - ♦ Fax
- **Inter personal communication**
 - ♦ Door-to-door





Multiple Communication Systems Capacity for Warning Disseminations

Information on existing warning systems, strength, weakness and procedures can assist communities with proper planning and developing tsunami warning system





Factors to Consider in Developing a Warning Capability

- Targeting populations-at-risk, communication for warning must take into account
 - ◆ Who are the recipients
 - ◆ Where they are located
 - ◆ What they are doing
 - ◆ Time of day.
 - ◆ Season (e.g., peak tourist season)
 - ◆ what they rely upon to receive local news and information
 - ◆ what special needs they may have, and
 - ◆ how well they understand and accept the warning in order to take action.





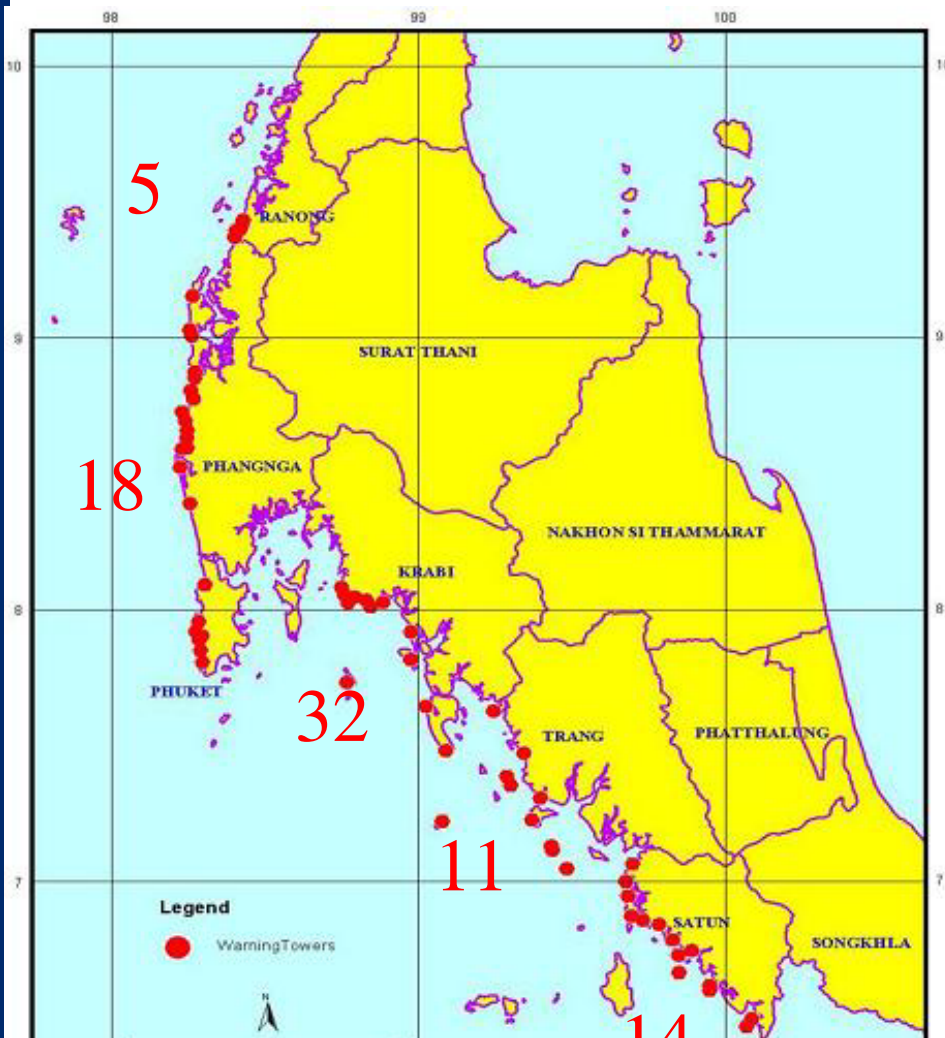
Warning System Parameters

- Reliability
- Coverage
- Messaging
- Emergency Issues





Existing Tsunami Warning/ICT Towers



- 99 siren towers installed in the west coast
- 48 towers installed/in process eastern side
- 139 towers in north and north-eastern part (planned)



Existing Communication System: Announcement Tower/ Loud Speaker

- Mainly uses to communicate daily announcements, can be used for disaster warning as well
- Controlled by the Sub-District or District Offices. But need to develop a procedures for routine maintenance
- Planned/ installed automatic activation of local loud speakers at the same time with warning tower activation





Existing Communication System: SMS/ Mobile Communication

- NDWC can send SMS to 5000 mobile phones simultaneously. NDWC send warning message all the 645 local agencies in Six Provinces
- Need to ensure the mechanism/ process so that all local agencies receives warning through SMS
- Recommend a systematic method to assure the key people are notified and when those people change – you have a way to get those new responsible people to the SMS distribution

Advisory- 250

Watch- 470

Warning-777





Existing Communication System: Landline Telephone

- The number of calls successfully completed will depend:
 - ◆ whether or not people answered the telephone call;
 - ◆ the line was busy;
 - ◆ people remained on-line until the message was fully delivered;
 - ◆ there was telephone network congestion encountered, etc.





Existing Communication System: Fax/ Facsimile

- NDWC can send message to 150 numbers simultaneously to the:
 - ◆ District offices- 22 places
 - ◆ Governor Offices- 6 places
 - ◆ Local Government- 14 places





Existing Communication System: Television

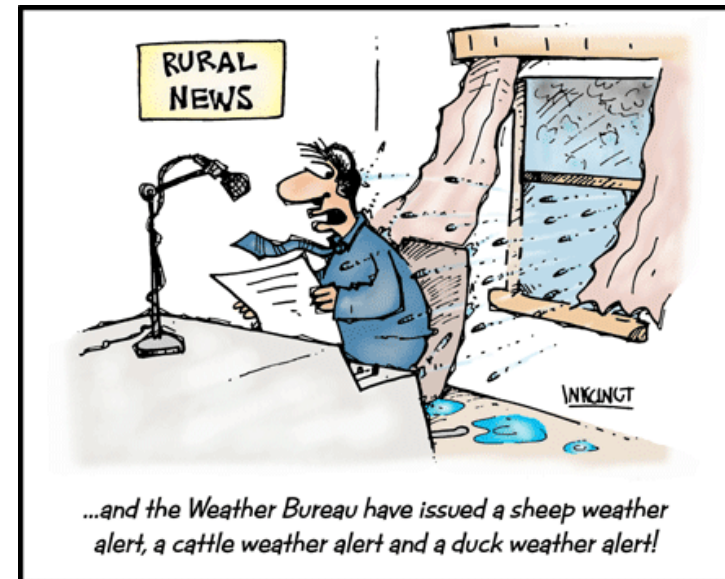
- NDWC has its television studio that can send a signal to TV POOL to distribute to channel 3, 5, 7, 9 and ITV to immediately interrupt normal program to broadcast
- Channel 5 shows green, yellow and red small circles in the screen to aware situation status of disaster





Existing Communication System: Radio Network

- There are 280 radio stations under the DoPR in collaboration with NDWC to disseminate the warning message
- NDWC has also planned to connect all 76 provinces through provincial radio broadcasting stations using the Asia Star Satellite





Existing Communication System: Amateur/ Ham Radio

- 300,000 people according to NTC have HAM radios
- The direct Radio Frequency communication of most HAM radios is less than 50 km in average
- About 150,000 licensed HAM radio operators are active at various times. This number also varies with incidents





Existing Communication System: VHF-CB 245 MHz

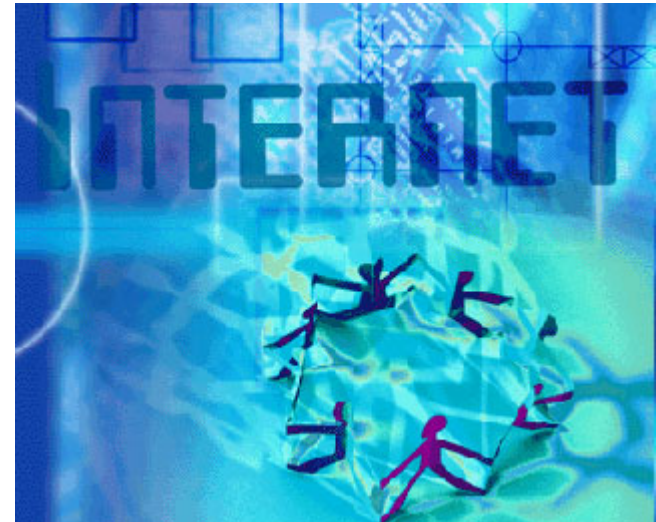
- CB channels users are greater than the HAM as it used in various businesses
- The CB/HAM networks are not well-planned, although the HAM RoIP can cover virtually the whole country but frequency arrangement, control center need to identify
- DDPM and Other stakeholders have very good VHF/HF communication system





Existing Communication System: Internet

- NDWC have developed a plan to send information via e-mail to the responsible agencies. This mechanism is installed at the center and will be activated soon





Some Observations

- No single method of warning will reach all and a strategy is needed to integrate and support multiple methods and channels to disseminate messages
- By adopting standards for information formatting and telecommunications interfaces warnings systems should be flexible enough to adapt to different information delivery systems.



Some Observations

- Warnings are primarily issued by government. But warning distribution systems are often owned/operated by private entities
- Improvements of warning systems depend on all stakeholders developing standards and systems that are mutually beneficial.
- Local authorities & Community is responsible to issue evacuation orders and ensure that warnings can be accessible to, understood by, and acted upon by local populations under their jurisdictions most directly affected by tsunami threats



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“An effective notification system always requires continuous public education and awareness about the purpose and capabilities of the system. A system can never be totally effective without education, no matter how expensive or sophisticated. Whatever methods are chosen, all groups that are part of the notification process should be involved in the planning, implementation and operation of their systems”.

Thank You