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Early Warning, Evacuation and Emergency Response Management

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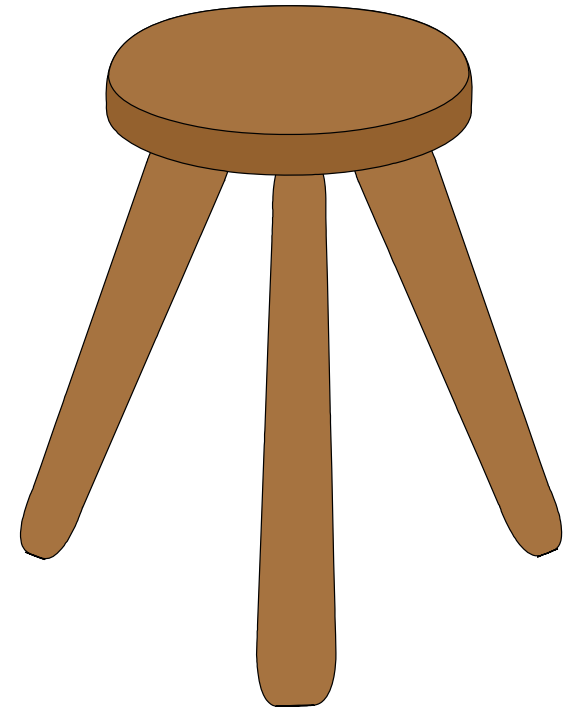
Elements of Coastal Community Resilience





The Warning System

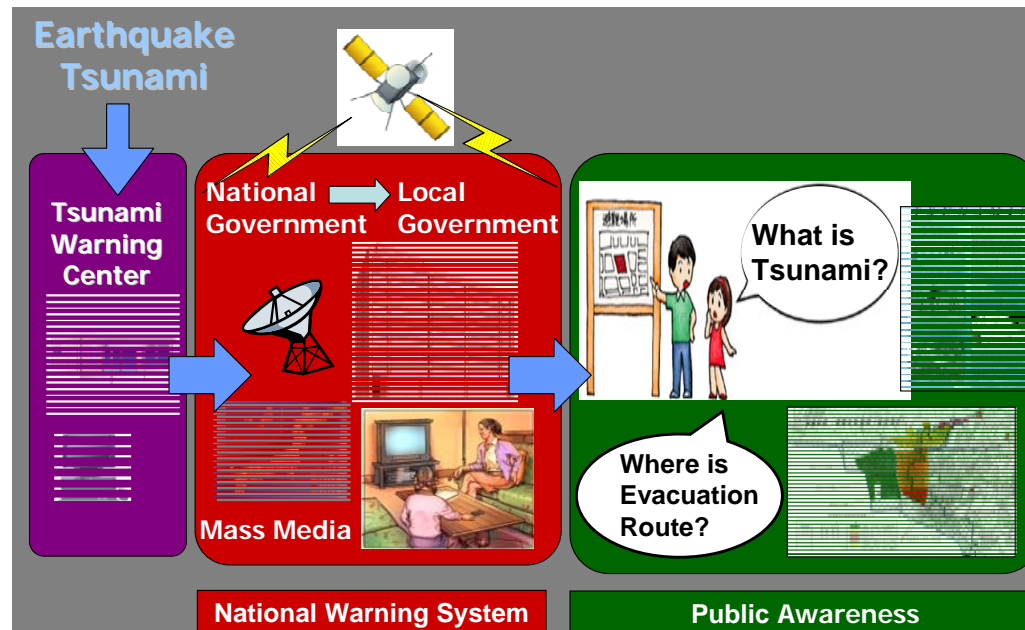
- Detection / Warning
- Dissemination
- Response





Warning & Evacuation System Goal

To maximize the number of people who take appropriate and timely action to minimize injury, death, and property damage due to hazards





Features of Early Warning

- A System Design and Plan including regulatory framework for involved agencies, decision authorities, mapping of communications, required training for personnel, SOPs, Checklists, and Testing Protocols at all levels of government
- Technology and Hardware for disseminating warnings
- Plan and Conduct of routine tests, simulation exercise and evaluation of total system on regular basis





Features of Evacuation

- Identifying Evacuation place and develop maps, plans with community engagement and proper signage for safe evacuation
- 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





Factors Considered in a Resilient Warning System

- 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.





Communication Technologies for Warning and Evacuation Order

- **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





Good Practices.....

PTWC AND HAWAII AS EXAMPLE OF END-TO-END SYSTEM

- HAWAII did Tsunami **Hazard Assessments** in the 1970's and continue to update
- Tsunami **Evacuation Zones** Published in Telephone Books
- Public **Education Programs** in Place including a "Tsunami Awareness Month"
- State and Counties Receive PTWC Bulletins by **Multiple Means**
- Public is Notified by **Multiple Means**: Sirens, Radio, Television, Airplanes

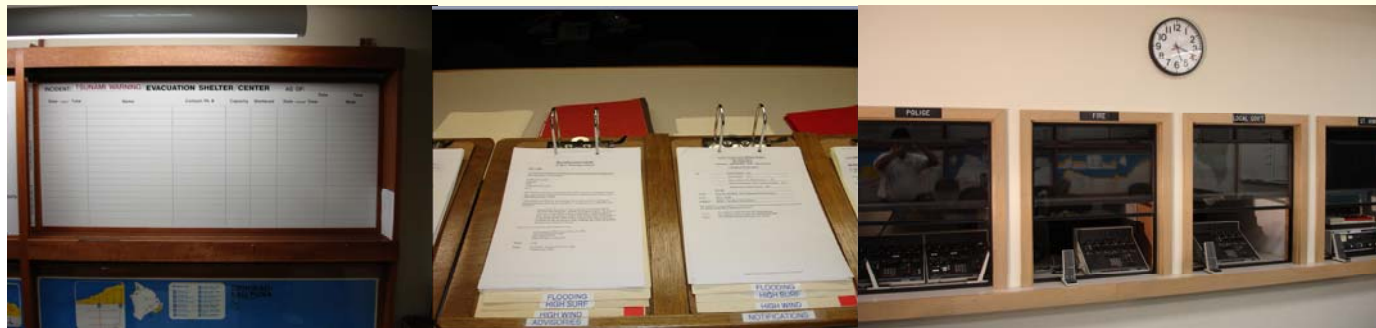




Good Practices.....

PTWC AND HAWAII AS EXAMPLE OF END-TO-END SYSTEM

- Counties Participate in NWS **Tsunami-ready** Program
- State Conducts Semi-annual **Tsunami Exercises**
- State and Counties Have **Pre-established Procedures** For Carrying out Tsunami Evacuations and Response with Police, Fire, and Other Departments

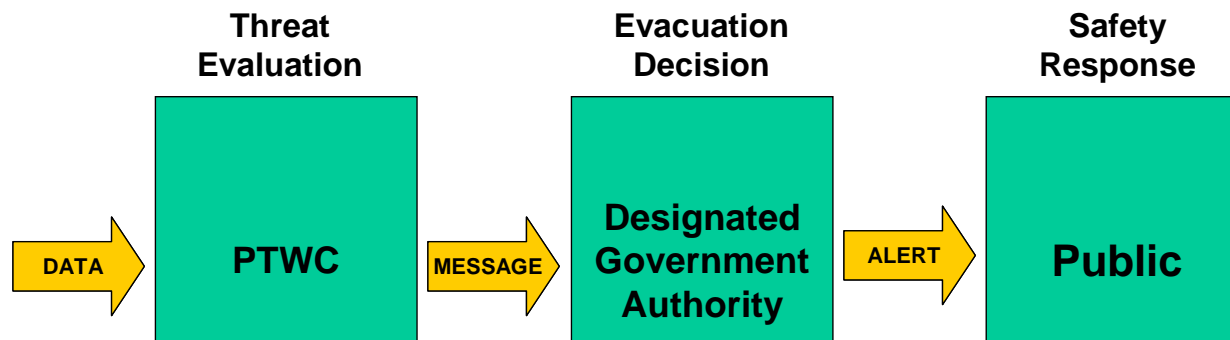




Good Practices.....

PTWC AND HAWAII AS EXAMPLE OF END-TO-END SYSTEM

- State Organizes and Holds Semi-annual Stakeholders Meetings of its **Tsunami Technical Review Committee** that Includes PTWC, Emergency Managers, Emergency Responders, And Scientists
- State of Hawaii and its Counties have Experts that Serve as **Tsunami Advisors**
- Hawaii Participates In The **U.S. National Tsunami Hazard Mitigation Program**





Emergency Response

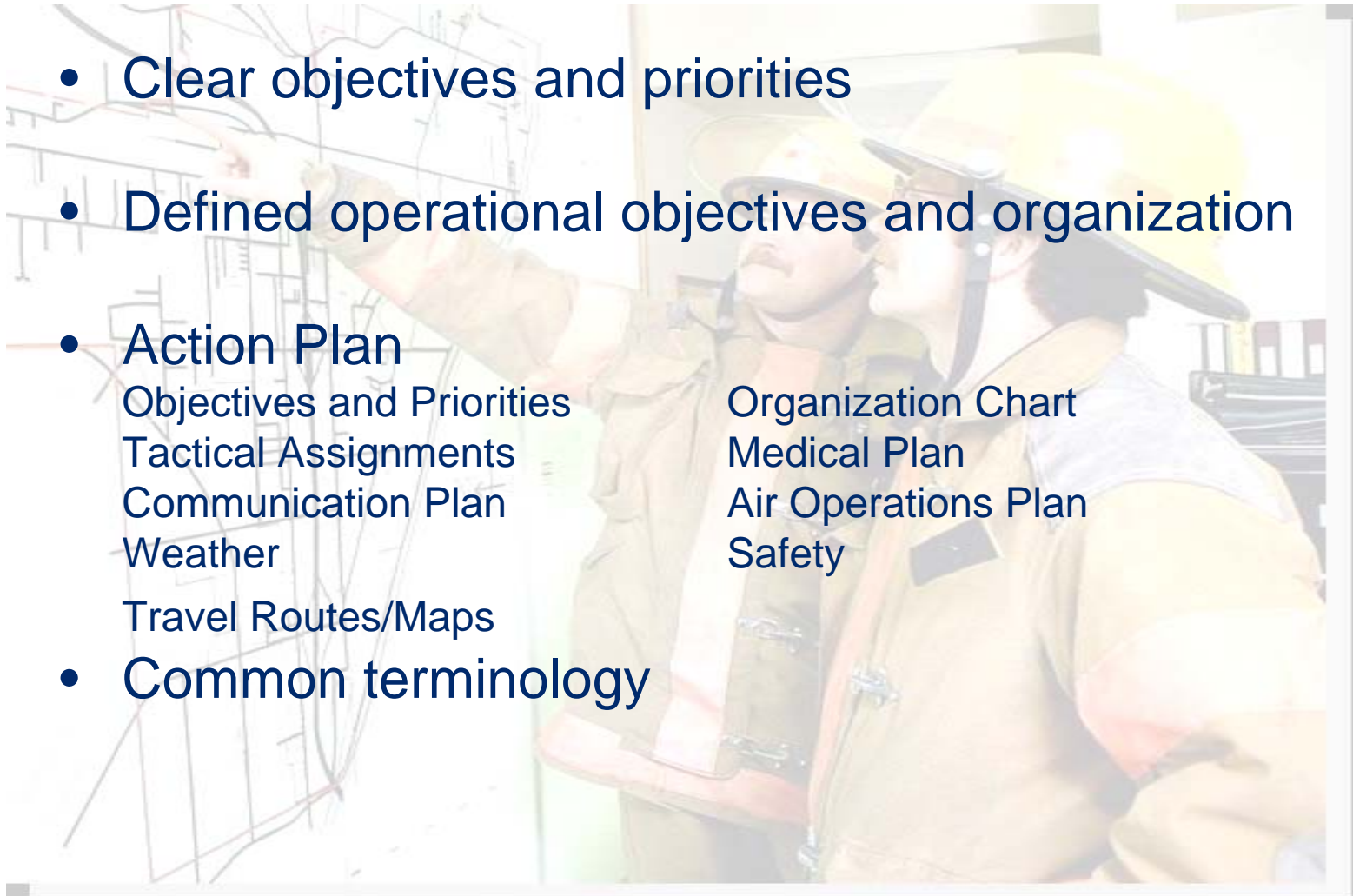
- All emergencies and crisis events are by definition chaotic and highly dynamic, creating physical, emotional, and social disorder.
- Normally, EOC manages the emergency response effort comprising of command, control and coordination of organizations and resources.





Key Features of Emergency Response

- Clear objectives and priorities
- Defined operational objectives and organization
- Action Plan
 - Objectives and Priorities
 - Tactical Assignments
 - Communication Plan
 - Weather
 - Travel Routes/Maps
- Common terminology
 - Organization Chart
 - Medical Plan
 - Air Operations Plan
 - Safety





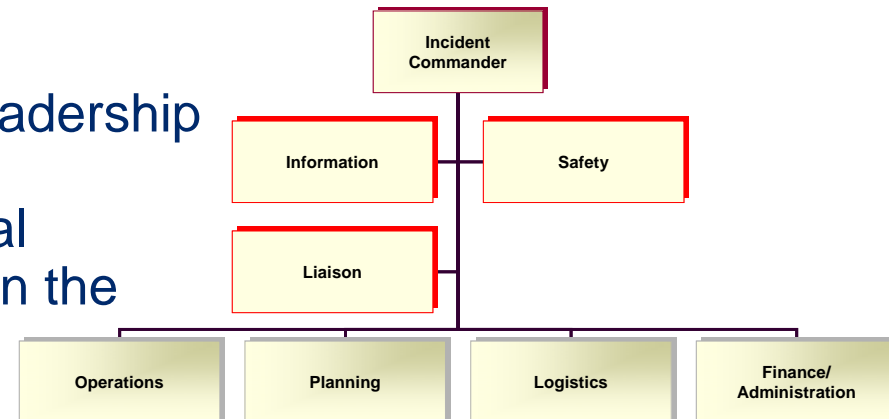
Key Features of Emergency Response

- Common communications
- Uniform resource typing
- Written Position Descriptions
 - ♦ Roles and responsibilities defined
 - ♦ Clear lines of authority, chain of command and reporting requirements
- Standardized personnel qualifications and training – national coordinating group



Good Practices: Incident Command System (ICS)

- Single standardized incident management system used by all emergency response disciplines
- Multi-hazard disaster response leadership structure for **COMMAND AND MANAGEMENT**: specific technical competency skills are integrated in the ICS organization
- Provides accurate information, strict accountability, planning, and cost effective operations and logistical support for any incident





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ICS in Asia

- India
 - Ongoing since 2002
 - Ministry of Home Affairs – focal point
 - LBSNAA – Indian Administrative Service training institution
- ASEAN
 - On-going since 2004
 - ASEAN Committee on Disaster Mgmt – focal point
 - Regional application
 - Pilot countries – Brunei, Philippines, Vietnam
- Sri Lanka

Incident Command System



Government of India
Ministry of Home Affairs
National Disaster Management Division



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“An effective warning, Evacuation and Emergency Response 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 warning process should be involved in the planning, implementation and operation of their systems”.

Thank You