# Elements of a community-based warning system*

* and its relation to a public warning system

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Presentation at Workshop on Sharing Knowledge
19 November 2007, New Delhi

LIRNEasia
Learning Initiatives on Reforms for Network Economies

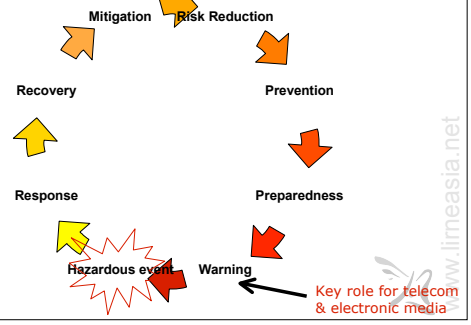


## Agenda

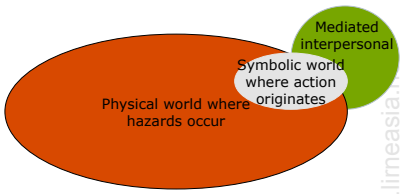
- The disaster cycle and the role of ICTs in disaster risk reduction through warning
- Parallels between the classic public warning model and the community-based hazard information model
  - Early warning center -- Hazard information hub
  - Communication to first responders – communication to community leaders
  - Last mile



## The disaster cycle

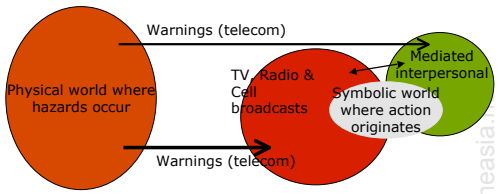


## Physical and symbolic worlds, absent linking technologies





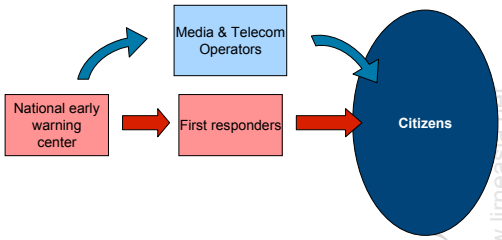

## The physical, the symbolic & their linking through ICTs, simplified



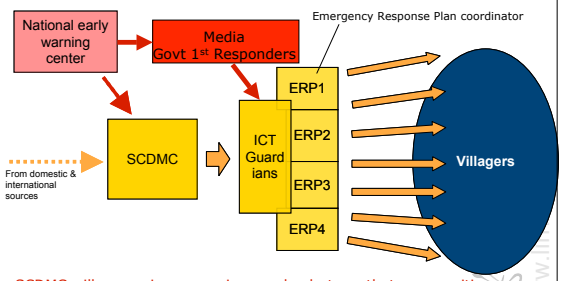

**More time to run; more lives saved**



## Early warning chain (standard form)



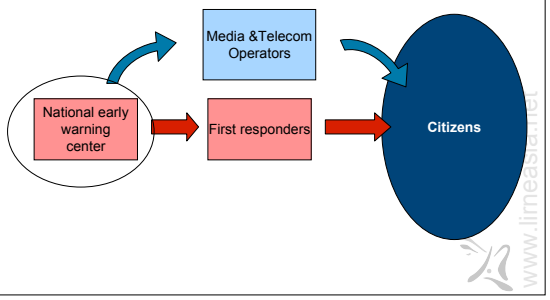
## Early warning chain (community based; applicable to Last-Mile HazInfo project)




SCDMC will **never** issue warnings; only alerts so that communities can be better prepared to receive the warning from government



## Lessons for better/faster issuance of warnings at national warning center






## Scale of the problem

- Imagine sequentially dialing and giving the message to
  - Television channels (7 in Sri Lanka)
  - Radio channels (10+)
  - Telecom operators (8)
- If each call takes 3 minutes, need 75 minutes for the whole set (leaving aside government first responders)
  - 2004 Indian Ocean tsunami reached Komari/Arugam Bay coastline within 90 mts of earthquake
  - Detection-monitoring people require 15 mts minimum to issue a warning, so all we have in 75 mts
  - Faster we get the message out, more time for people to respond

## Efficient procedures can improve decision making and avoid bad outcomes

- Getting the best possible information to national experts
- More time for experts to consider the options and advise authorities
- False warnings can cause
  - Deaths (more than 10 in Sri Lanka in the 2005 evacuation)
  - Robberies
  - People refusing to evacuate



## Pilot project results

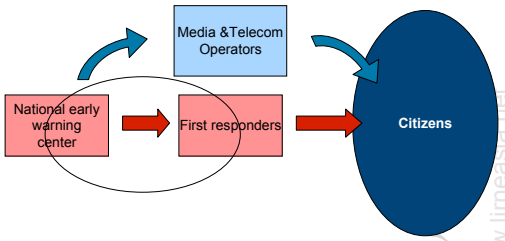
- Efficiency of receiving the outputs of hazard detection and monitoring system
- Procedures for authorization of message, if any
- Efficiency of transmitting message
  - Role of Common Alerting Protocol
  - Single-input multiple-output mechanism



## Elements of a solution re transmitting messages

- Filling in of standard template that includes automatic translation based on look up of dictionaries
- Single button transmission in multiple media and multiple languages
- Achievable in a few months
  - Need to develop internal protocols
  - CAP broker software
  - Equipment at media newsrooms and telco operations rooms
  - Procedures for verification that do not involve a one-on-one phone call

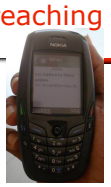
## Lessons for communication to first responders






## ICTs used in reaching communities

CDMA Fixed Phone



GSM Mobile Phone

Remote Alarm Device

Addressable Radios for Emergency Alerts

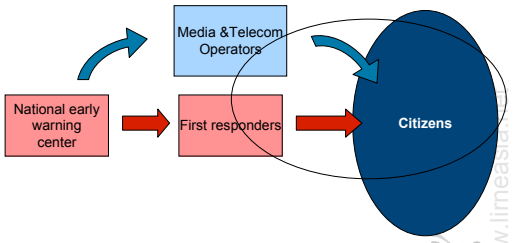
Very Small Aperture Terminals



## Which work best?

- Eight modes (individual and combined)
- Reliability and effectiveness (composite measures)
- Complementary redundancy

## Lessons for the last mile

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## Community specific

- Forms of training that will work
- Levels of organizational strength
- Importance of emergency response plans
  - Plan without simulation is no plan
  - Simulation without plan cannot be done

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