

# Regulator's role in disaster risk reduction

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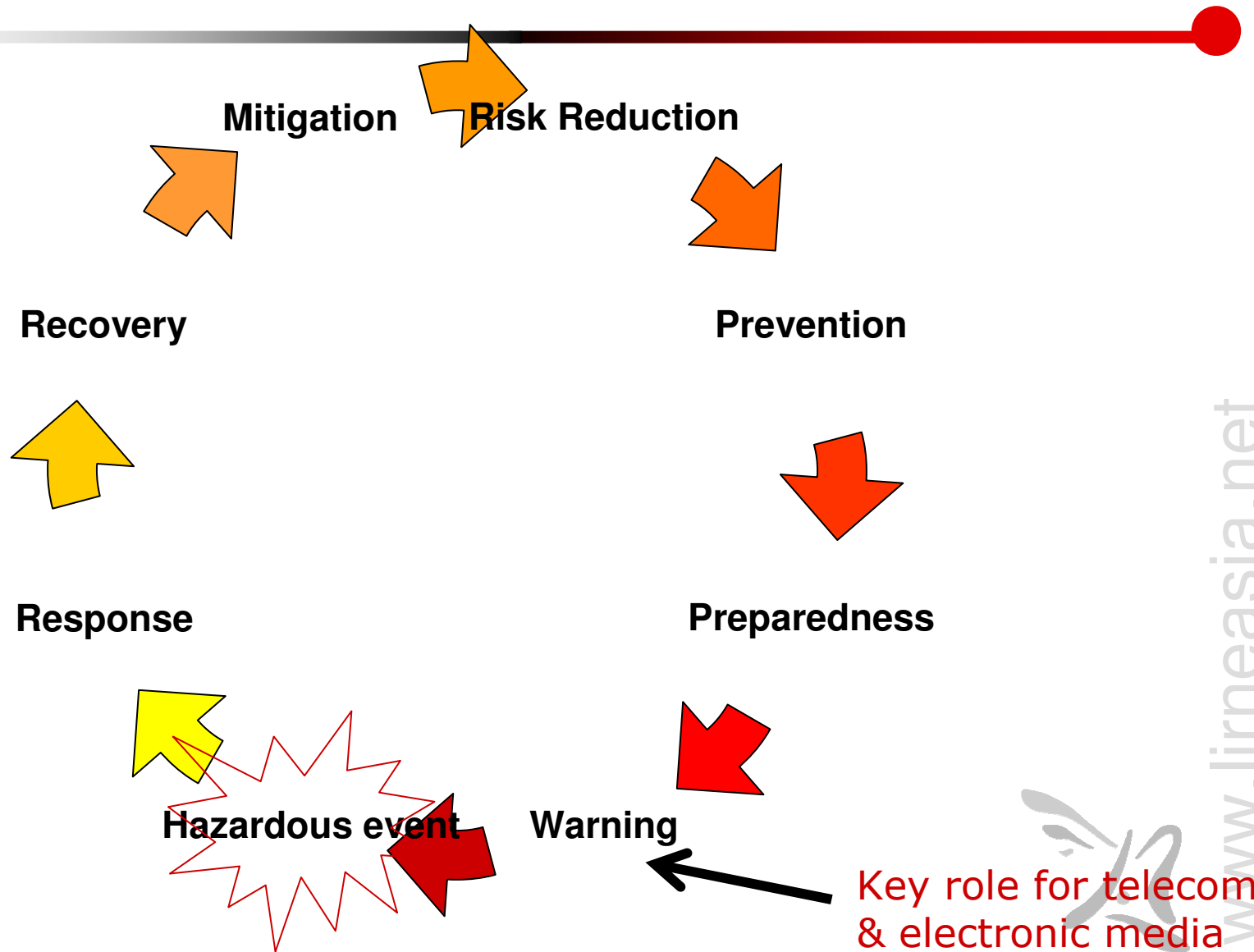
# Agenda

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- ❑ The disaster cycle and the role of ICTs in disaster risk reduction through warning
- ❑ Optimal applications of ICTs
  - SMS
  - Cell broadcasting
- ❑ Regulatory responses-pre disaster
- ❑ Regulatory responses-during disaster
- ❑ Regulatory responses-after disaster
- ❑ Tampere Convention

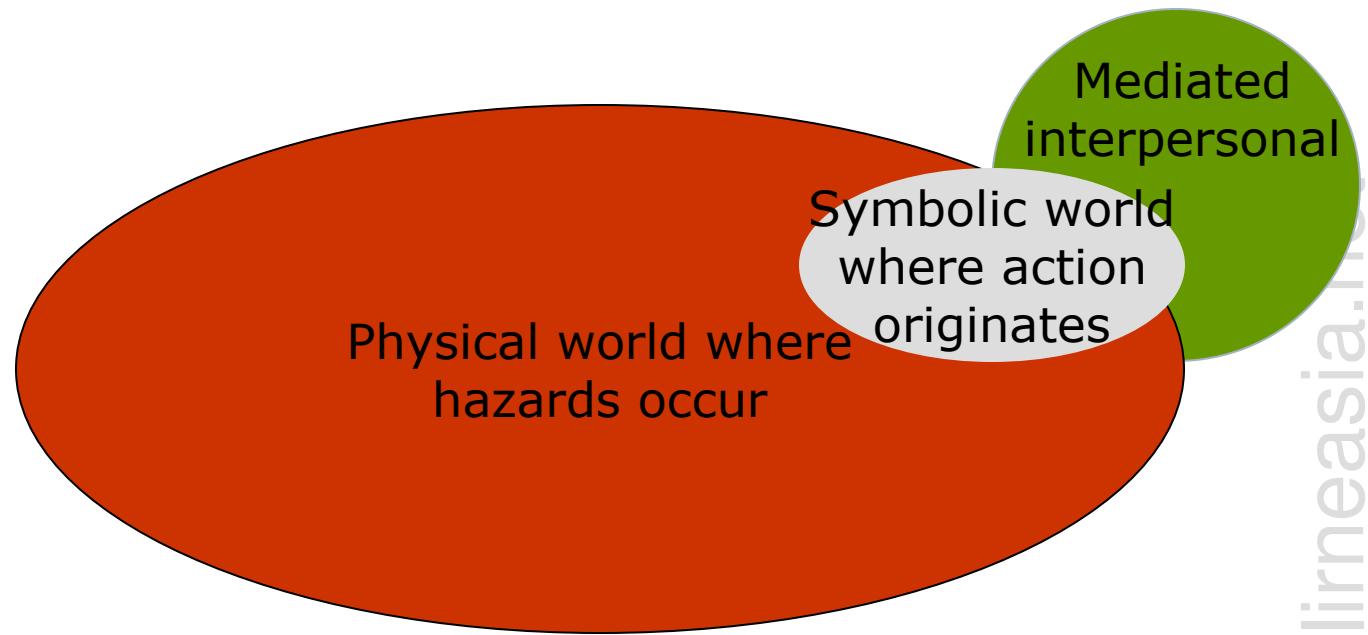


# The disaster cycle

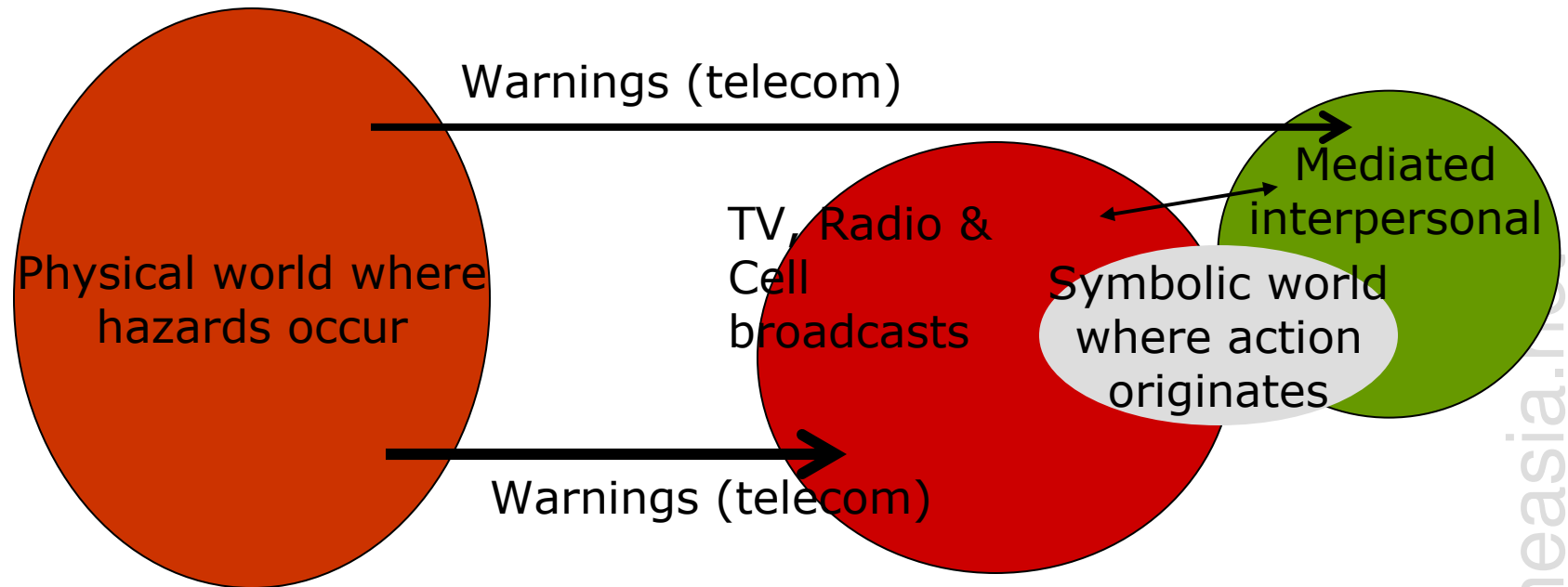


# Physical and symbolic worlds, absent linking technologies

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



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



Optimum effect of ICTs

# Types of hazards

	Rapid onset (60 mts < t < 3 days)	Slow onset
Large geographical effect	Tsunamis, cyclones, dam breaks (cascaded), floods	Drought, climate change
Local geographical effect	Dam breaks (single), land slides	Erosion

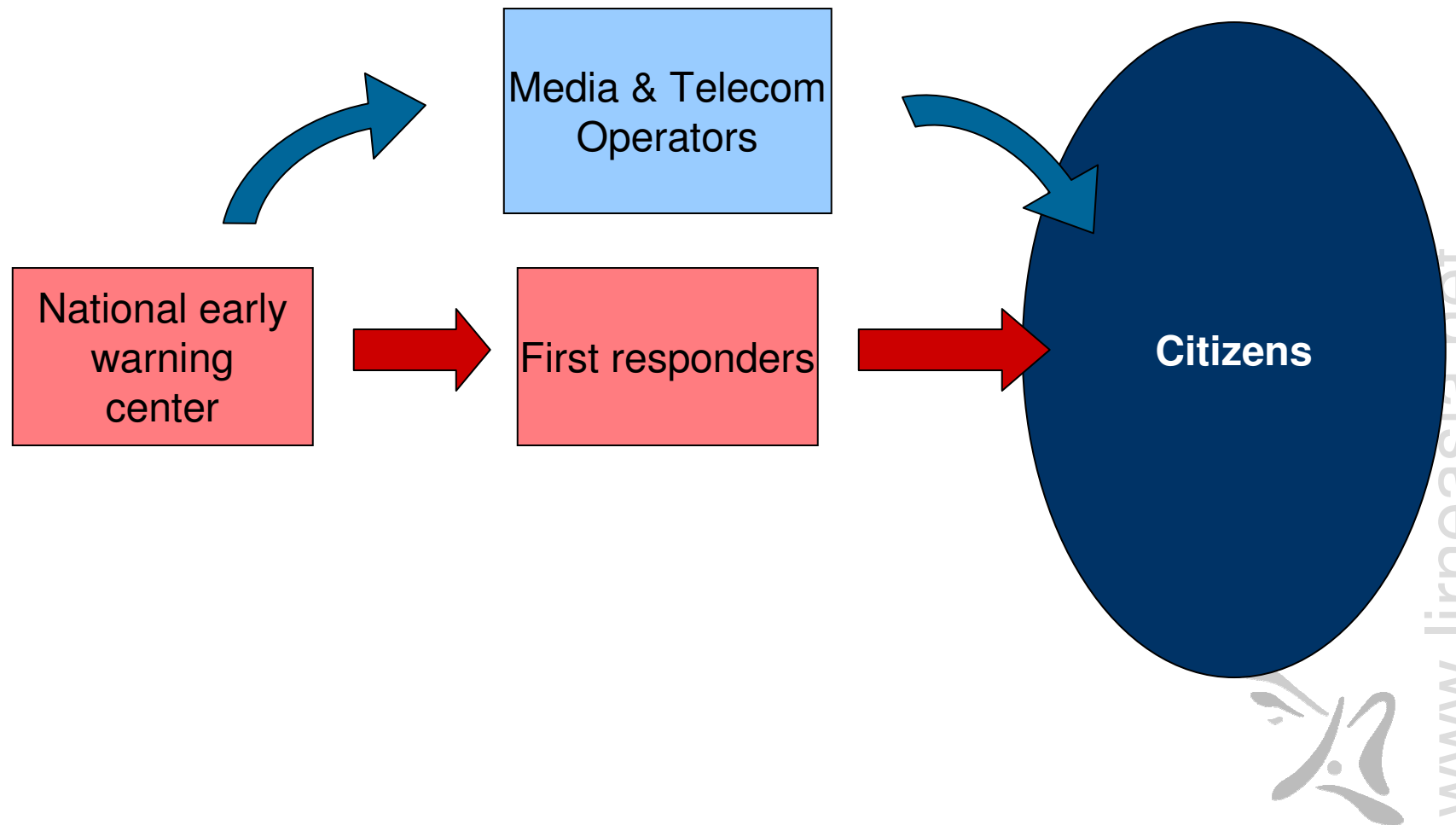


# Early warning is a chain; a chain is as strong as its weakest link

- Detection and monitoring of rapid-onset, large-scale hazards (cyclones, tsunamis, etc.) quite advanced
- National warning systems can be improved
- Getting the message to the people-at-risk (“last mile”) is the weakest link
  - Failed in Burma (Myanmar); Bangladesh; Indonesia, etc., after 2004 tsunami
- Risk reduction also requires that people know what to do and can do it (e.g., orderly evacuations)
- False warnings and unnecessary evacuations can have serious consequences
  - High cyclone deaths in B'desh in 2007, caused by false tsunami evacuation of 12 September 2007



# Early warning chain (standard form)





# Two easy ways to strengthen the early warning chain

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- ❑ Improve communication from National Early Warning Center (NEWC) to media and first responders using SMS plus
- ❑ Add cell broadcasting to public warning provided by electronic media



# SMS+ for first responders & media

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- SMS is a point-to-point technology that is inherently susceptible to congestion if too many people come on the network at the same time
  - Unsuitable for public warning and in immediate aftermath of disaster
  - Useful to alert small numbers before the news is widespread
- SMS module of Sahana suite allows one-touch dissemination of 140-character message to pre-registered first responders and journalists
  - Additional information provided through a robust website capable of handling a spike of use



# SMS+

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- Immediately implementable solution that is part of widely implemented open-source disaster-management software suite, Sahana
- Principal advantage is that it reaches mobile handsets that are highly likely to be within immediate reach of intended recipients



# Cell broadcasting for public warning

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- As a broadcast mode (point-to-multipoint) CB is inherently immune to congestion
- No pre-registration required, reaches all handsets within a base station area
  - Can be targeted to specific areas, unlike national radio and TV
- Negative is that audible alert may not be possible on all handsets yet
- Ideal for countries like Thailand and Maldives with very high mobile penetration
  - Moderately useful for India, projected to have at least 50% of BOP households covered in 2008
  - Not applicable to unreformed countries like Burma



# What regulators can do

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- Reliable, redundant communication links needed for
  - Hazard detection & monitoring
  - Linking warning center to media and to first responders (police, etc.)
- May be covered under license conditions
  - Price, quality, availability
- Even if not, regulator can create platform for interaction between operators and disaster warning entities
- Efficient management of short codes



# Regulatory roles

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- Standards for disaster-resilient infrastructure, including load factors and tower locations
  - Best arrived at/implemented with operators
- Measures to avoid congestion and failure
  - Priority numbers
    - But problems; proceed with caution
  - Load shedding protocols



# Regulatory response

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- Requirements for quick response to disaster
  - Contact persons/numbers
  - Emergency kits
  - Mutual support arrangements
  - Interface between operators and government agencies
    - Regulatory agency to be 24/7 contactable
  - Tampere Convention on Provision of Telecom Resources for Disaster Mitigation & Relief Operations
    - National authority
      - Preparation of inventory can assist preparedness



# Regulatory role at time of disaster

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- “State of exception”
  - Procedures for approvals/licenses/authorizations
  - Customs clearance of emergency equipment
- Survivors need to contact families/people need to locate loved ones
  - Prior arrangements re
    - Databases
    - BPO/Call centers





# Regulatory role in recovery phase

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- Post-disaster assessments
  - Requirements to preserve data
  - Bring operators together to improve procedures
- Who is to pay for damage?
  - If government pays, wrong incentives
    - If government does pay, use matching funds
  - Insurance requirements
  - Deal with the immediate problem but also ensure incentives for robust network planning are not affected



# Regulatory role in recovery phase

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- Restoring service
  - Temptation to fall back to command and control mindset
  - Regulator can balance the political needs of government with avoidance of administrative expropriation
    - Provide neutral ground to work out restoration schedule
  - If government wants to give people free service, it should pay for it
    - Corporate Social Responsibility is voluntary



# Restoring lives and livelihoods

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- Telecom is important; people recover through talk
  - Try to get more phones to affected areas than there were before the disaster
  - Encourage low-cost packages; installment payments
  - Educate people on economizing



# Tampere Convention

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- International treaty that came into force in January 2005 though with only a few signatories
- Intended to provide a legal framework for sharing telecom resources in disaster situations
  - No expropriation of emergency equipment
  - Limited immunity for personnel



# Tampere Convention

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- Requires member states to
  - Designate a national authority to coordinate with UN Emergency Relief Coordinator
  - Prepare a Telecom Assistance Information Inventory
    - Useful also as part of domestic preparedness planning



# Why regulators should care about disaster management

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- ❑ Part of reducing regulatory risk → creating a better telecom regulatory environment conducive to investment
- ❑ Regulator has unique knowledge and ability to bring parties together
- ❑ Will contribute to legitimacy



# Good governance: the bulwark that saves lives



# For further information . .

- Samarajiva, R., P. Anderson, M. Knight-John & A. Zainudeen (2005). NEWS:SL A Participatory Concept Paper for the Design of an Effective All-Hazard Public Warning System. <http://www.lirneasia.net/national-early-warning-system/>
- *Tampere Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations* (1998). <http://www.itu.int/icet/1998-06/>
- Samarajiva, R. (2005). Mobilizing information and communications technologies for effective disaster warning: Lessons from the 2004 tsunami, *New Media and Society*, 7(6). Prepub version at: <http://www.lirneasia.net/2005/07/icts-and-early-warning/>
- Anderson, P.S. & Gow, G.A. (2001, June 28). The wireless revolution: Emerging opportunities and hidden risks for the emergency management communities. Paper presented at 5<sup>th</sup> International Conference on Technology, Policy and Innovation, den Haag, The Netherlands. At: <http://www.delft2001.tudelft.nl/paper%20files/paper2054.doc>
- Samarajiva, Disaster preparedness and recovery: A priority for telecom regulatory agencies in liberalized environments. *International Journal of Regulation and Governance*, 2001, 1(2): 181-96  
<http://www.teriin.org/online/ijrg/dec01/contents.htm>; also in *Proceedings of the Policy and Development Summit, ITU Telecom Africa 2001*.  
[http://www.itu.int/TELECOM/aft2001/cfp/auth/4858/pap\\_4858.pdf](http://www.itu.int/TELECOM/aft2001/cfp/auth/4858/pap_4858.pdf)

