

Evidence Aid Symposium

20 Sep. 2014, Hyderabad, India

The Need for Evidence Based Public Health Response in Disasters

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Basic Healthcare Seeking Behavior

- Need to do something, when faced with an imminent or realised health related disaster.
- People want public health authorities to do something and expect to see them knowing what to do and doing what they ought to do.
- People care about what works rather than what ought to work.
- Based on perceptions, beliefs, information and/or knowledge of the extant environment.

Beliefs & Realities of Public Health Emergency Situations

Belief

- 1 Dispatchers will hear of the disaster & send em response units to the scene.
- 2 Trained emergency personnel will carry out field search & rescue.
- 3 Trained EMS personnel will triage & refer to hospitals, if needed.
- 4 Casualties will be transported to hospitals by ambulance.
- 5 Casualties will be distributed among hospitals appropriately.
- 6 Field authorities will promptly notify area hospitals about casualties transported to them.
- 7 Most serious casualties will reach first.

Reality

- Emergency response units, both local & distant, will often self-dispatch.
- Most initial search & rescue is carried out by the survivors themselves.
- Casualties are likely to bypass on-site triage and go directly to hospitals.
- Most casualties arrive by a variety means (Pvt. cars, taxis, police, walk etc.)
- Most casualties are transported to the closest or most familiar hospitals.
- Hospitals may learn about a disaster from the first arriving victims, news media and other sources.
- Least serious casualties often arrive first.

Source: Heide Erik Auf der. The Importance of Evidence-Based Disaster Planning. Annals of Emergency Medicine. 2006 Jan; 47(1):34-49.

Preparedness & Planning for Disaster Mitigation.

- Adhoc plans based on anecdotal evidence from most recent disasters and/or personal experience of officers may not work.
- Planning can make a difference only if; it
 - ▶ Takes into account a broad range of activities,
 - ▶ An appropriate knowledge base is used, and
 - ▶ Accepts identifiable principles applicable to all disaster situations.
- Disaster planning must rest on valid knowledge and not myths or misconceptions.

Ref: Quarantelli Enrico L. Organizational Behavior in Disasters and Implications for Disaster Planning. Emmitsburg, MD, USA: National Emergency Training Center (NETC); 1986; NETC Monograph Series, (FEMA 104).

Knowledge as a key resource for health challenges.

Gerd Antes & Mike Clarke. Lancet. 2012 Jan; 379(9812):195-196.

- Healthcare decision makers are crucially dependent on rapid access to unbiased, up-to-date knowledge.
- Adequate original research on various aspects of disaster medicine & healthcare is essential.
- Need to balance the drive for innovation & new interventions in health care with the best use of resources that already exist from past research.
- Systematic reviews are important for identification, assessment, synthesis, and dissemination of research findings.

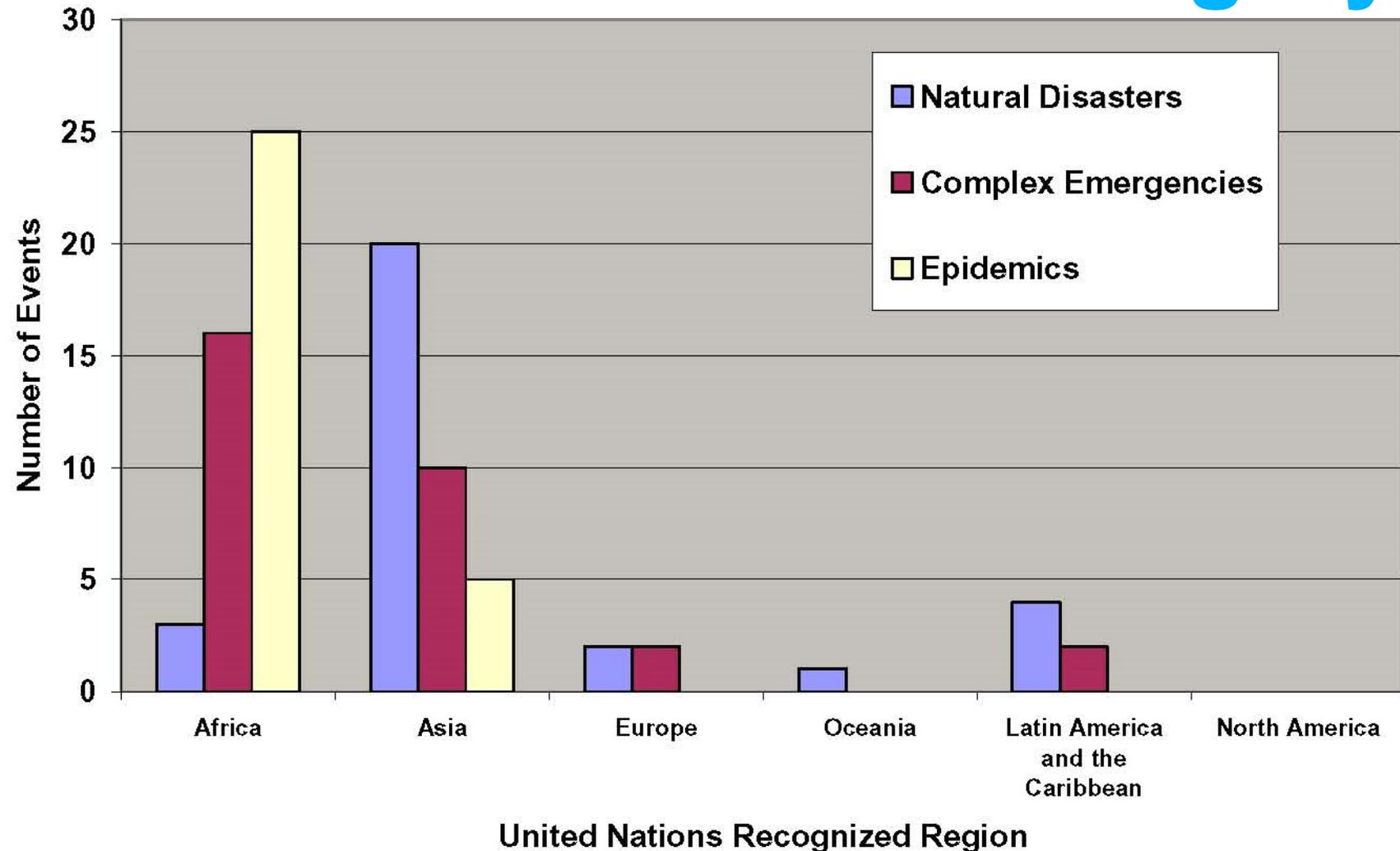
Doc. & Estimation Targets in Disaster Healthcare Research

- Assessments of Adverse Health Outcomes:
 - ▶ Epidemiology by type of Disaster.
 - ▶ Identification of the population at risk.
 - ▶ Mortality, Morbidity, Trauma - Prevalence / Incidence
 - ▶ Exposures and Epidemiologic Risks;
 - ▶ Em Med. & Public Health - Needs, Capacities & Critical Gaps.
- Preventive & Curative Interventions.
 - ▶ Efficacy & effectiveness of medical & health interventions.
 - ▶ Standards & Protocols of medical and health interventions.
 - ▶ Indicators to measure impact of health interventions.
- Characterisation & Comparative Study of:
 - ▶ Disaster Preparedness, Coordination & Management
 - ▶ Access, Disaster Responses & Coping Behavior, and
 - ▶ Recovery from Disasters.

Method Issues & Challenges of Research on Disasters

- Most disasters arise from; either chaotic dynamic systems or stochastic processes.
- Wide variation in the types, incidence, severity and setting of disasters.
- Timing of Data Gathering is Important.
- Context not the methods of research that makes disaster research unique (Stallings, 1997).
- Problem driven choice of research method, instead of a golden hammer.
- Limited scope for Randomised Ctrl Trials (RCTs).
- Grow out of 'RCT=Pure Science' mindset.

Local Relevance of Disaster Research: Regional Distribution of Largest 30 Disasters in Each Category.



Source: Spiegel Paul B; Le Phuoc; Ververs Mija-Tesse, and Salama Peter. Occurrence and overlap of natural disasters, complex emergencies and epidemics during the past decade (1995–2004). *Conflict And Health*. 2007; 1(2).

Prevalent Research Methods in Disaster Healthcare Studies

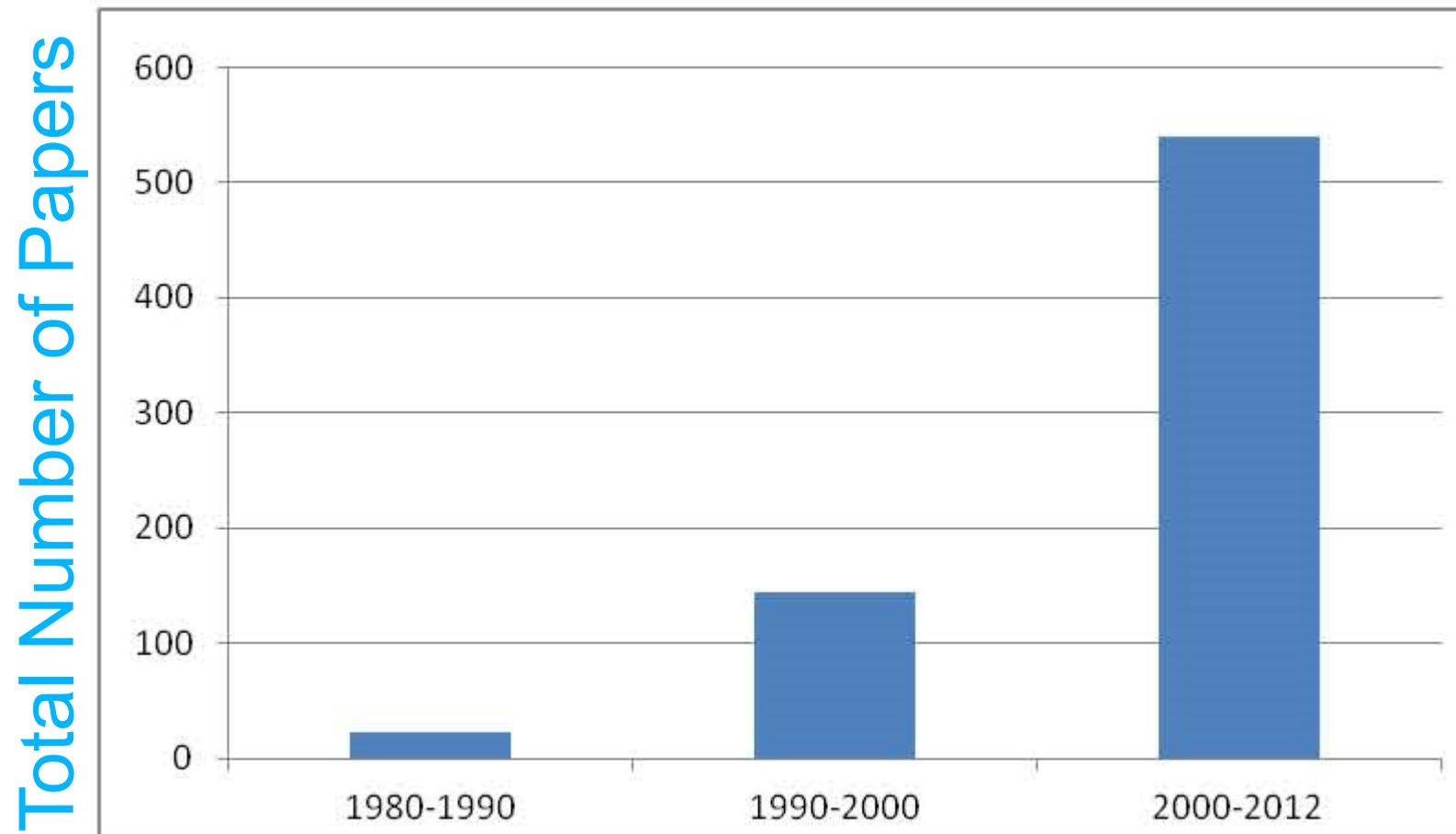
Types of original research submissions to Prehospital and Disaster Medicine, 2013-14.

SI	Research Method	%
1	Primarily Survey Based	64
2	Descriptive Case Studies	23
3	Descriptive and analytical database studies	7
4	Cohort population studies	2
5	Simulation, modeling, descriptive interventional studies & comparative analysis of similar events.	4

Source: Stratton Samuel J. Is there a scientific basis for disaster health and medicine? (Editorial). Prehospital and Disaster Medicine. 2014 Jun; 29(3):221-222.

Research on Health Interventions in Humanitarian Crises, 1980-2013.

LSHTM-HSPH-ODI Study.



Source: Blanchet Karl; Roberts Bayard and others. An evidence review of research on health interventions in humanitarian crises. London: London School of Hygiene & Tropical Medicine (LSHTM); 2013 Nov 22; Figure-2, page-29.

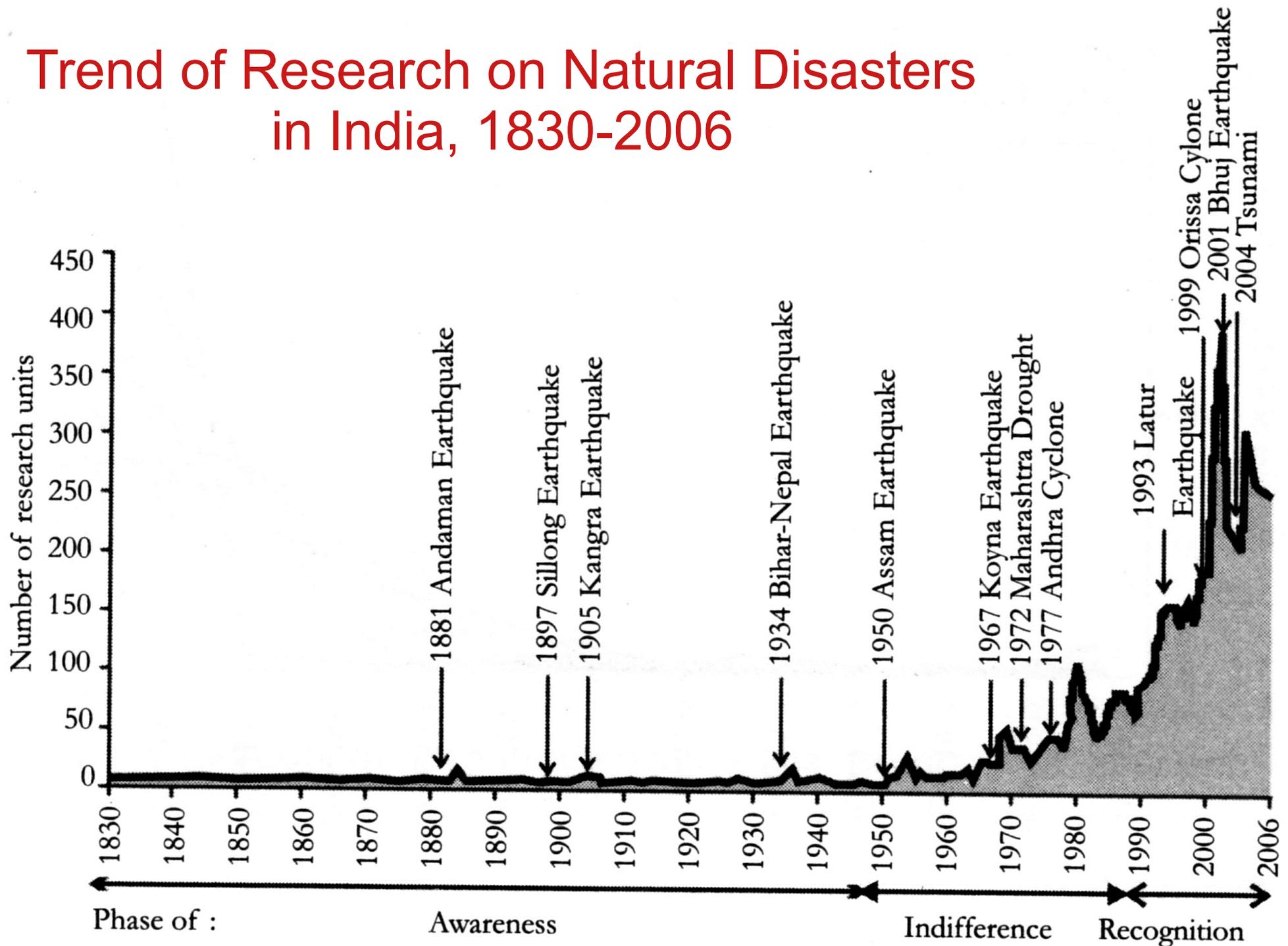
Research on Disasters in India, 1830-2006.

Dbn. of Res. Units (n=5017) by Type of Natural Disaster

Sl	Type	Titles	%
1	Earthquake	Earthquake and seismicity	29
2	Flood	Flood and flash flood	17
3	Drought	Drought, scarcity and rainfall deficit.	14
4	Cyclone	Cyclone, supercyclone, storm-surge, tropical storm, tidal-surge.	11
5	Landslide	Landslide, avalanche, landslip, mass movement, subsidence, debris slide, rock-fall, slope failure.	9
6	Tsunami	Tsunami	4
7	Storm	Dust storm, thunder storm, storm, rainstorm, hail storm, tornado, norwester.	1
8	Hvy Rainfal	Heavy rainfall, cloudburst, rainfall	1
9	H&C Wave	Heat wave and cold wave.	<1
10	Assorted	Disaster, nat. dis., coastal dis., water-related dis., hazard, natural hazard, multiple haz., env. haz., geomorphic haz., nat. calamity, weather event, calamity, emergency and risk.	15

Source: Table-4.1 in Anu Kapur. On Disasters in India. New Delhi: Foundation Books, Cambridge University Press India; 2009, page-40.

Trend of Research on Natural Disasters in India, 1830-2006



Source: Figure-4.1 in Anu Kapur. On Disasters in India. New Delhi: Foundation Books, Cambridge University Press India; 2009, page-45.

"A few years ago, I tried to find out what my role would be as a physician volunteer following a major disaster in my community, only to discover that no one could tell me. As I investigated further, I discovered physicians are largely left out of emergency healthcare planning, although everyone hopes they will miraculously appear when a disaster occurs. This started my quest to learn as much as possible about emergency preparedness, so I could define both my own role and the role for other doctors in my community. Along the way, my quest has taken on a life of its own. Instead of waiting for a disaster to occur, I find myself volunteering more and more on a variety of disaster preparedness projects."



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USA ; <http://disasterdoc.net/about/>

Thank You!