

# XXIV FIG International Congress

## The Role of Property Professionals in Building Disaster Resilience

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- *"We have technologies to build sturdier buildings and to build infrastructures that take into account possible fault lines. We know a great deal about how to work with the natural landscape to ensure that urban settlements are more secure. The problem is that so many parts of the world are not benefiting from this knowledge and these technologies. Disaster risk reduction measures must not be a luxury that only some States can afford."* UN Secretary General Ban Ki-moon (UN News, 2010)



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## The Role of Property Professionals in Building Disaster Resilience

- Climate change and natural disasters
- Increasing incidence of natural disasters
- Disaster effects and resilience
- Resilience through effective design, planning and construction
- Role of property professionals in developing resilience.



## Climate Change Driven Disasters

- Carbon dioxide levels in the atmosphere increased at the highest annual rate in the decade to 2005 and are now higher than at any time in the past 650,000 years.
- Eleven of the last twelve years (1995–2006) rank among the twelve warmest years since 1850
- Projections are that global temperatures will continue to rise at about 0.2°C per decade. Source: IPCC 2007
- The Copenhagen Accord reached in December 2009 set 2°C as the target limit of global temperature increase maximum.



## Climate Change Driven Disasters

- Many predictions are that temperature rises well above the 2°C target may well be experienced.
- Temperature rises will result in a continuing rise in sea levels. In the past decade sea levels rose at the rate of 3.1mm per annum (IPCC, 2007).
- An increase of 2°C over pre-industrial levels is a critical 'tipping' point
- If emissions are stabilised at 550ppm then global temperatures will increase by 3°C. - We will reach this CO2 level within 30 to 35 years at current rates.
- If we continue as we are without reducing emissions, within 100 years temperatures will probably rise by 5°C (Stern, 2009)



## Climate Change Driven Disasters

- Climate change will impact:
  - Vulnerable costal communities
  - Flood prone areas
  - Extreme weather events
  - Agriculture
  - Business
- Costs of addressing Climate change in excess of 5% World GDP
- Mitigating the effects of climate change and to finance a reduction in emissions from deforestation, the Copenhagen Accord has identified US\$30 billion funding from developed nations between 2010 and 2012 to provide for adaptation and mitigation works (UNFCCC, 2009).



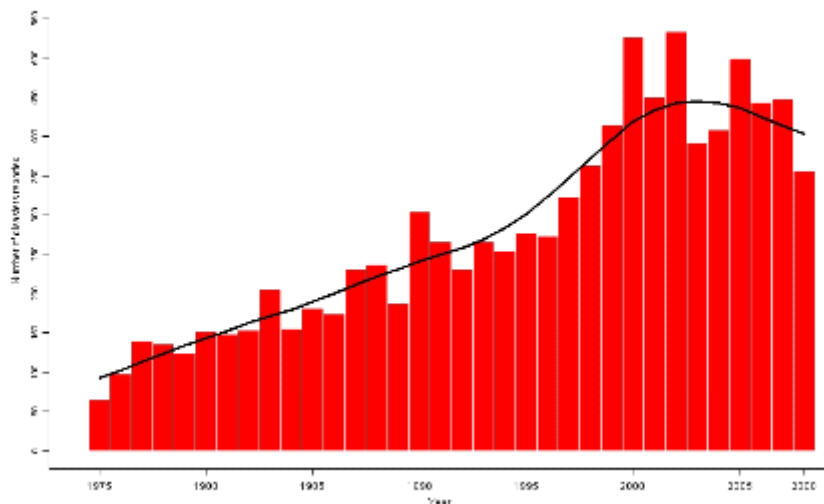
# Natural Disasters

- Each year of the past decade an average of 258 million people have suffered from disaster, a considerable increase on the 74 million a year recorded in the 70s (Christian Aid 2006).
- In 2008 the number of reported natural disasters was 326 worldwide, with some 236,000 people reported killed, the second-highest number in a decade.
- The total cost of natural disasters in 2008 was US\$181 billion,

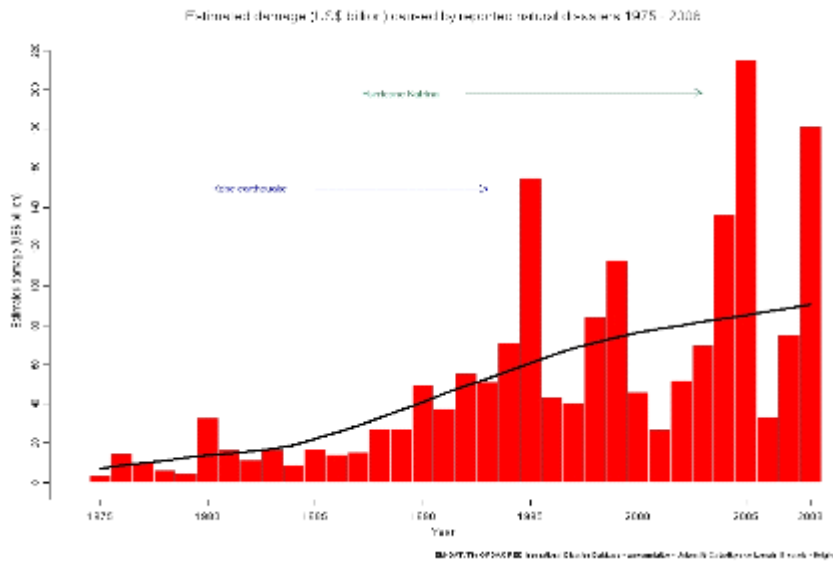


# Natural Disasters

Natural disasters reported 1975 - 2008



# Natural Disasters



# Natural Disasters

- The loss of life resulting from major disasters disproportionately occurs in less developed countries
- Out of a survey of 49 low-income countries, 24 face high levels of disaster risk and six are impacted by between two to eight disasters each year (UNDP, 2004).
  - A 6.5 scale earthquake that hit central California in 2003 killed two people.
  - A 6.6 scale earthquake that hit Iran four days later killed over 40,000 people. Both disasters took place in areas with high-density populations (DFID, 2006).
- 80,000 people lost their lives and 230,000 houses Seriously damaged in 1993 Latur India;
  - 30,000 affected families had to stay in temporary houses for 4 years (MERDP, 1998)



## Disaster Resilience

- Need to mitigate Climate Change
- Resilience –
  - the ability to resist the adverse effects
  - mitigate the risks associated
  - Rapid return to pre-disaster situation
- 



## Build Back Better

*'We in the West get better at constructing safe buildings, while tens of thousands die in Pakistan for lack of basic building standards'*

Christian Aid 2005



## Disaster Resilience

- Identify vulnerability
- Key community assets - analysis
  - Important civil buildings – schools, hospitals
  - Location
    - Tsunami coastal community relocation Sri Lanka
  - Building standards
    - Haiti schools program



## Build Back Better

- *“It is crucial that all stakeholders buy into common standards, approaches and methodologies. All recovery processes would greatly benefit from having a single information structure that can collect, analyse, and disseminate information that would have buy-in from local stakeholders, including government, IFCs, NGOs, donors and UN agencies”* (Clinton, 2006)



## Build Back Better

- Developing Countries – Resilience
  - Low resistance to disaster events
  - Low risk identification or amelioration of known risks.
- Post-disaster response
  - Immediate aid
  - Rapid response
  - Limited future risk reduction



## The Role of Property Professionals in Building Disaster Resilience

- RICS Disaster Management Commission
- Origins & Impetus
  - 2004 Tsunami
- Role of the Built Environment Professional





## The Role of Property Professionals in Building Disaster Resilience

- **Royal Institution of Chartered Surveyors:**
  - Founded 1868
  - Non-profit
  - 150,000 members worldwide
  - 120 countries
  - World regions:
    - Asia Pacific;
    - Americas;
    - Oceania;
    - Europe
- **Royal Charter : public interest**
- **Disaster Commission March 2005**



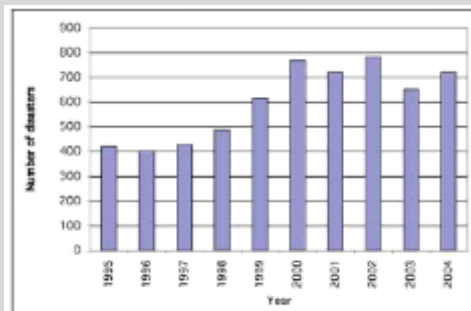
## RICS -Disaster Management Commission

- **Mission:**
- *“To use the skills and knowledge of RICS members to help communities to strengthen their capacity to mitigate the effects of major natural and man-made disasters affecting the built environment”*



## RICS Disaster Management Commission Mind the Gap

### Disaster Management – Gap Analysis



Source: Chivian Act, 2005, p.4; EM-DAT, CRED, University of Louvain, Belgium.

### Mind the Gap! Post-disaster reconstruction and the transition from humanitarian relief

A case study on the 2005 earthquake in the Maldives, with a focus on the transition from humanitarian relief to reconstruction.

16/04



RICS



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## RICS Disaster Management Commission Mind the Gap

- Impaired government and leadership capability
- Poor management and coordination
- No overall geophysical plan
- Land ownership difficulties
- Ineffective supply chain
- Damaged and depleted infrastructure
- Skills shortage



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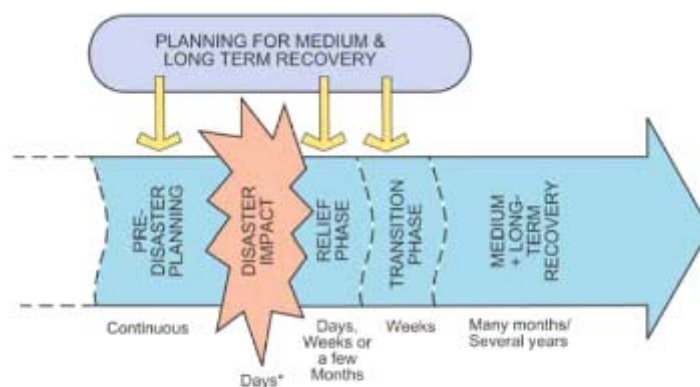
## RICS Disaster Management Commission Mind the Gap

- The world needs a better system and to be better prepared for dealing with disasters
- International (aid) agencies are geared to a quick response in terms of humanitarian relief..... BUT Disasters are also a *development issue*
- **A gap exists between the humanitarian relief phase, and the permanent reconstruction and rehabilitation of affected households and communities.**



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## RICS Disaster Management Commission Mind the Gap



Source: Max Lock Centre, figure 4 Main Report, after RICS 2006, p1.



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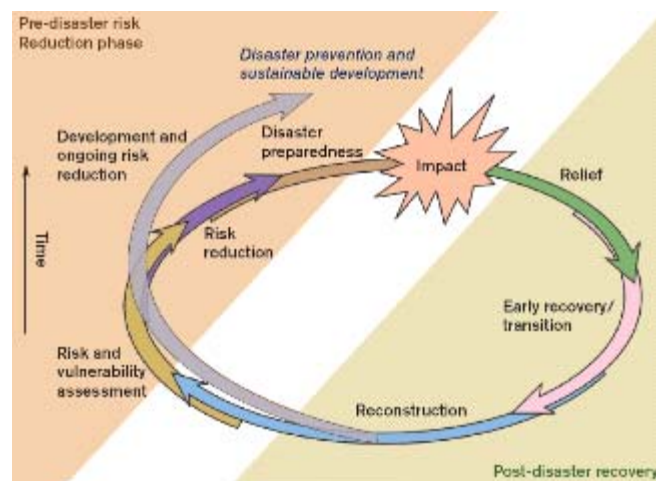
## Roadmap for Reconstruction Disaster Process Protocol

- Being Prepared
- Taking a whole project view
- Clear planning framework
- Consistent process
- Process flexibility
- Stakeholder involvement and teamwork
- Coordination
- Feedback



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## Roadmap for Reconstruction Disaster Process Protocol



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## The Role of Surveying Professions in Disaster Mitigation

### Three Phases of Disaster Management

1. emergency or humanitarian
2. transition period
3. reconstruction and recovery
  
4. *Status quo continuum* , before the disaster strikes or between disasters



## The Role of Surveying Professions in Disaster Mitigation

### *Status quo continuum* , or disaster planning

- Developed economies plan to mitigate disaster
  - Resilient buildings
  - Community plans
  - Building locations
- Developing economies
  - Role for property surveying professions and aid agencies.



## Disaster Management Commission

### Surveyors skills (1)

- Geographic information
- Rapid assessment of extent of destruction from “before and after” satellite imagery
- Boundary demarcation and settling boundary Disputes
- Planning and development
- Master planning
- Specifying emergency repairs



## Disaster Management Commission

### Surveyors skills (2)

- Specifying emergency repairs
- Advice on finance, development controls
- Construction procurement
- Commissioning construction work
- Project management and cost control
- FM Business continuity
- Building Control
- Ensuring that proper building safety and quality standards are achieved



## The Role of Surveying Professions in Disaster Mitigation

Disaster planning in Developing economies

- Skills and expertise remain a scarce resource
- Built environment professionals and Aid agencies working together to address the resource issues
- Training of property professionals in disaster relief.
- RICS DMC - Facilitating input and collaboration



## The Role of Surveying Professions in Disaster Mitigation

- **identify, fund and manage construction projects that would either increase resilience in disaster-prone areas, or build back better following disasters**
- **Project Management service to organisations such as UN agencies, major charities, local and national governments**



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## The Role of Surveying Professions in Disaster Mitigation

- advice on a wide range of surveying/built environment issues, from boundary disputes, to building codes, to cost assessment
- Early Response Assessment  
Team: a group of highly trained individuals, ready to travel at short notice to a disaster zone to assess structural damage and advise agencies on the ground



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Thank you

[www.rics.org/disastermanagement](http://www.rics.org/disastermanagement)

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