Disaster impacts and climate change: implications and policy responses

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Overview of the problem

- Disasters affect millions, cause big losses, hinder the achievement of MDGs
- Key issue is human vulnerability. Root causes of risk are social and economic
- Main problem is awareness and political commitment - risk is not well factored in
- Knowledge, tools and policy frameworks are readily available
- Climate change makes a bad situation worse, adds to the urgency
Disaster characteristics
Patterns, trends, concepts
Basic patterns - 1995-2004

- 2,500 million people affected
- 890,000 dead
- US$ 570 billion losses,
- Most disasters are weather- or climate-related

Poor people and poor countries most affected
Deaths per million by region and hazard type (1994-2004)
Disasters afflict poor people and countries most .... they are a development issue

Number of People Killed
by Income Class/Disaster Type, 1975-2000, World Summary

- **Low Income**: 27,010 (1.36%)
- **Lower Middle Income**: 87,414 (4.41%)
- **Upper Middle Income**: 520,418 (26.25%)
- **High Income**: 1,347,504 (67.98%)

Disasters include:
- Drought
- Earthquake
- Epidemic
- Flood
- Slide
- Volcano
- Wind storm
- Others

0 200 400 600 800 1000 1200 1400 1600
Number of Killed ('000s)
Selected disasters with large economic impact (1975-2006)

Centre for Research on the Epidemiology of Disasters (CRED) EM-DAT: The OFDA/CRED International Disaster Database
Great natural disasters 1950-2006: overall losses and insured losses

NatCatSERVICE, Munich Re

EM-DAT: The OFDA/CRED, International Disaster Database, Université catholique de Louvain Brussels - Belgium
But beware of simple interpretations!

Upward trend - but also in information capture rate

But big decline in big fatality events - e.g. flood deaths in China

1931: 3,700,000
1959: 2,003,396
2006-7: <2,000 p.a.

Source of data: EM-DAT: The OFDA/CRED International Disaster Database
Conceptual basis (1) Pre-science view

Natural hazard

Unpredictable, immense power, little one can do to prepare, fatalism, Act of God?
Conceptual basis (1) - Engineering view

Natural hazard

+ Vulnerability

Understand the physics, and probabilities, do risk assessments, monitor the hazards

Avoid risky situations, build well, be prepared, have early warnings

Lowered risk and impacts

DISASTER
Conceptual basis (3) - Social perspective

Natural hazard

Unsafe buildings

Lack of information

Low access to public services

Vulnerability

Environmental degradation

Unplanned settlements

Disenfranchisement

Weak institutions

Lack of political commitment

DISASTER
Tsunami mortality in women and men, by age, December 2004, Tamil Nadu, India

Children, elderly and women are the most vulnerable

Courtesy Professor Deborati Guha-Sapir, Université catholique de Louvain Brussels - Belgium
The reasons for rising disaster risks? .... *Mostly increasing vulnerability worsened by climate change* 

- More people and poor people in risky and unsustainable situations 
- **Unsafe development:** floodplain settlement, coastal exploitation, mega-city growth, unsafe houses, wetland destruction, river channelling, deforestation, soil erosion and fertility decline 
- Exacerbated by poverty and disease, conflict and population displacement 

*Growing disasters are a sign of unsustainable development*
Climate change will increase disaster risks

- Mounting evidence - heatwaves, loss of glaciers and polar ice, record cyclone numbers
- 4th IPCC Assessment: expect temperature increases, heatwaves, sea level rise, more intense rainfall and drought
- Vulnerable areas: Africa, mega-deltas of Asia, small island states, and the poor
- Record number of humanitarian Flash Appeals this year - most are for climate events
- A more extreme climate will expose and punish the most vulnerable
Climate change and disaster risk are now coupled issues

**Growth in frequency of intense hurricanes**
Peter Webster et al.

**Stern Review: The Economics of Climate Change, 2006**

“Climate change is happening and measures to help people adapt to it are essential.”

“The costs of extreme weather alone could reach **0.5 - 1% of world GDP per annum by the middle of the century**, and will keep rising if the world continues to warm.”
Dealing with disaster vulnerability

Tools, policies, links with climate change
Disaster reduction - practical actions to reduce vulnerability

- Map and avoid high-risk zones
- Build hazard-resistant structures and houses
- Protect and develop hazard buffers (forests, reefs, etc)
- Develop culture of prevention and resilience
- Improve early warning and response systems
- Build institutions, and development policies and plans, to actively contribute to these goals
The disaster reduction triage

A. **Accumulated risk**: invest selectively in critical facilities - hospitals, schools, infrastructure lifelines

B. **New developments**: ensure land uses, environmental management, building designs, reduce not increase risk

C. **Post-event recovery**: “build back better”, advocate and organise to reduce future risks
Evolution of disaster reduction frameworks

1990-1999: International Decade for Natural Disaster Reduction – Promotion of disaster reduction, technical and scientific buy-in

1994: Yokohama Strategy and Plan of Action – First blueprint for disaster reduction policy (social and community orientation)

2000: International Strategy for Disaster Reduction (ISDR) – Oriented to increasing public commitment and linkage to sustainable development, enlarged networking and partnerships.

2002: Johannesburg Plan of Implementation, WSSD – Notes need for “integrated, multi-hazard, inclusive approach to address vulnerability, risk assessment and disaster management…”

The Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities to disasters

Agreed by 168 governments at the World Conference on Disaster Reduction, Kobe, Hyogo, Japan, 18 – 22 January, 2005

Seeks to achieve a “substantial reduction in losses”

- Disaster reduction as part of sustainable development
- Strengthen institutions (especially in communities) to build resilience
- Build risk reduction into emergency management and recovery
The Hyogo Framework

Priorities for action

- Disaster risk reduction as a priority with strong institutional basis for action
- Identify, assess and monitor disaster risks and enhance early warning
- Knowledge, innovation, education for culture of safety and resilience
- Reduce the underlying risk factors
- Strengthen disaster preparedness for effective response

Implementation and follow-up

- Primary role of the State; supporting roles for international and regional organisations, ISDR secretariat
- Monitoring and reporting, and indicators of progress in risk reduction
- Resources needs
People are central actors – living with risk

- Extensive practical experience in living with risk
- Growing recognition of disaster risks and action by public, businesses, NGOs, communities, cities and Governments
- Initiatives of SG and General Assembly on climate change
- ISDR system as global multi-partner forum for reviewing progress and guiding action

Children playing with “Riskland” board game
Key steps to reduce future disaster risks

- Forge coherent policy approaches to adaptation and disaster risk reduction
- Make risk reduction a core part of the post-2012 regime
- Scale up the use of risk reduction tools as a feature of current adaptation policies
- Use the ISDR system to boost efforts to reduce and manage risk
- Make risk reduction a central issue in development policy and programmes, from international to local levels