

Preparedness through DDR and DRM can help to adapt for climate change – The central message of chapter 9



A man removes water from his house in Mumbai, July 27, 2005
Image source: http://thewe.cc/contents/more/archive2005/weather_2005.htm



Kandolhudhoo island in Maldives, Image source: Daniel Beltra/Greenpeace via AP,
http://www.msnbc.msn.com/id/30808160/ns/us_news-environment/t/maldives-set-test-adapting-higher-seas/#.T5q16fW8V30

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Matrix Demonstrating the Connectivity Between the Case Studies

Key Messages for Policy Makers	Heat-waves	Hot weather and wildfires	Drought	Dzud	Cyclones	Floods	Epidemic Disease	Mega-cities	SIDS	Cold Climate	EWS	Legislation	Risk Transfer	Education
A. Context	•	•	•	•	•	•	•							
B. Observations of Exposure, Vulnerability, Climate Extremes, Impacts, and Disaster Losses					•			•	•	•		•		
C. Disaster Risk Management and Adaptation to Climate Change: Past Experience with Climate Extremes	•	•	•	•	•	•	•	•	•		•	•	•	•
D. Future Climate Extremes, Impacts, and Disaster Losses	•	•	•			•				•				
E. Managing Changing Risk of Climate Extremes and Disasters		•	•	•	•	•		•	•	•	•	•	•	•
Hyogo Framework for Action – Priorities for Action	•	•	•	•	•	•	•	•	•	•	•	•	•	•

1. Cyclones: Enabling Policies and Responsive Institutions for Community Action

- Despite cyclone Nargis (2010) being both slightly less powerful and affecting fewer people than cyclone Sidr in Bangladesh (2007), it resulted in human losses that were much higher, 138,000 fatalities compared to 3,400. Why?



1. Cyclones: Enabling Policies and Responsive Institutions for Community Action

- Significant differences in the quality of governance and investments in cyclone preparedness and reforestation efforts were observed.
 - With more than sevenfold increase in cyclone shelters and twofold increase in volunteers from 1991 to 2007, 3 million people were safely evacuated prior to landfall of Sidr in 2007.
 - Also, the Sundarbans provided an effective attenuation buffer during Sidr, greatly reducing the impact of the storm surge. (Govt. of Bangladesh, 2008).

2. Coastal Megacities: The Case of Mumbai

- In July 2005, within 24-hours, the city received 94 cm of rain, and the storm left more than 1,000 dead, mostly in slum settlements.
- Nearly 49% of the Mumbai population lived in slums (India's 2001 census).
- At present, Mumbai is the city with the largest population exposed to coastal flooding – estimated at 2,787,000 currently, and projected to increase to more than 11 million people exposed by 2070 (Hanson et al., 2011).
- The need to adapt is especially acute in developing countries in Asia given that 14 of the top 20 urban agglomerations projected to have the greatest exposure of assets in 2070 are in developing countries in this region (Hanson et al., 2011).

3. Small Island Developing States: The Challenge of Adaptation

- Small islands are extremely vulnerable to the effects of climate change, sea level rise, and extreme events.
- Small economies largely dependent on agriculture, fisheries, and tourism make them more susceptible
- “...under most climate change scenarios, water resources in small islands are likely to be seriously compromised” (Mimura et al., 2007).
- The economic and survival challenges of the people of the Maldives were evident after the 2004 tsunami caused damage equivalent to 62% of national GDP (World Bank, 2005c).
 - As of 2009, the country still faced a deficit of more than US\$ 150 million for reconstruction.

4. Risk Transfer: The Role of Insurance and Other Instruments in DRM and CCA in Developing Countries



Image source: AIDMI

- Traditional methods of financing disaster recovery have proved ineffective and inadequate in managing large-scale disasters.
- There is robust evidence to suggest that risk-transfer instruments can help reduce this gap, thus enabling recovery.
- Experience in developed countries has demonstrated additional ways in which insurance and other risk-transfer instruments have promoted DRR and CCA. This include awareness raising through risk assessments and incentivising risk reduction with lower premiums.
- Insurers and other providers can make risk reduction a contractual stipulation, for example, by requiring fire safety measures as a condition for insuring a home or business (Surminski, 2010).

5. Education, Training, and Public Awareness Initiatives for DRR and Adaptation

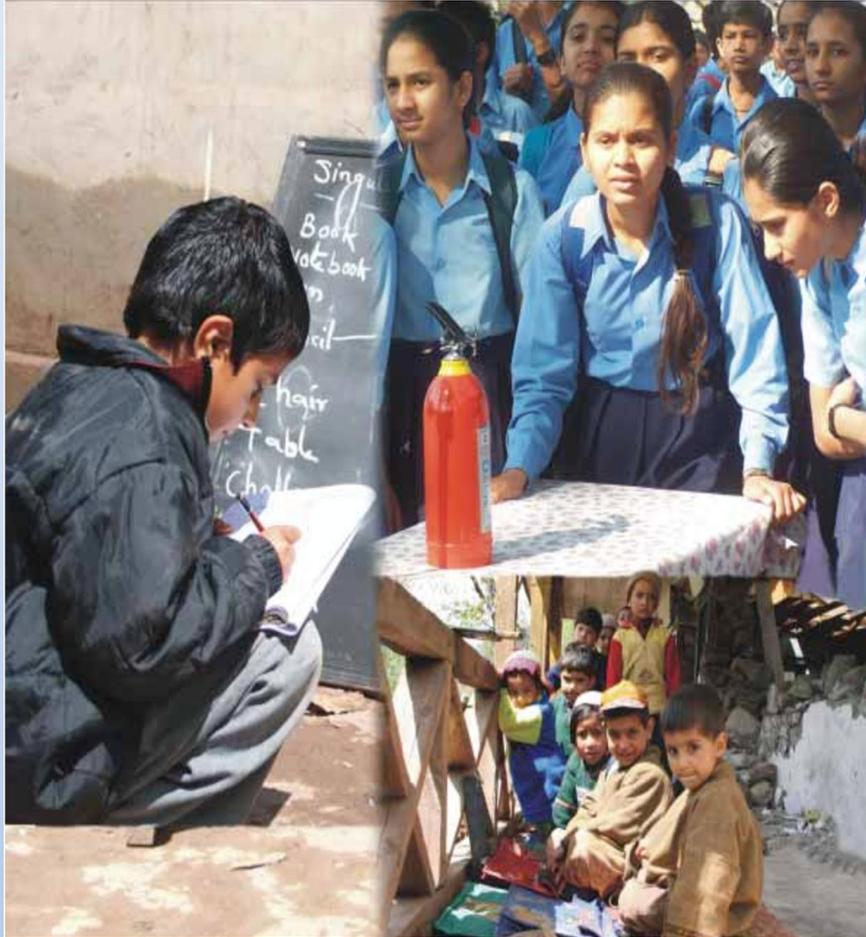


Image source: AIDMI

- Disasters can be substantially reduced if people are well informed and motivated to prevent risk and to build their own resilience (UNISDR, 2005b).
- The 2006-2007 international campaign “Disaster Risk Reduction Begins at School” (UNISDR, 2006) raised awareness of the importance of education with 55 governments undertaking awareness-raising activities and 22 governments reporting success in making schools safer (UNISDR, 2008b).
- Integrating climate change information into DRR education and integrating both into various subject matters is simple and effective.

Synthesis of Key Lessons Identified

- Need for improving international cooperation and investments in forecasting and regional and local early warning systems
- Invest in preventive-based DRR plans, strategies, and tools for adaptation than in response to extreme events
- Legal and regulatory frameworks are beneficial in ensuring direction, coordination, and effective use of funds
- Risk transfer can be linked to DRR and CCA by providing knowledge and incentives for reducing risk, reducing vulnerability, and enabling recovery
- Investing in knowledge at primary to higher education levels produces significant DRR and DRM benefits