

## Chapter 4

# CONCLUSIONS AND RECOMMENDATIONS

The aim of this Report is to map out an agenda for change in the way disaster risk is perceived within the development community. It presents a range of opportunities for moving development pathways towards meeting the MDGs by integrating disaster risk reduction into development planning.

The Report argues that disaster risk is a product of inappropriate development choices, just as much as it is a threat for future development gains.

This Chapter summarises key findings from the analysis of disaster risk and the discussion of disaster-development linkages undertaken in the Report.

The summary leads into six recommendations for further action. Each proposal is kept broad, drawing from the evidence presented in the preceding chapters. Each recommendation supports a specific agenda for reform in the management of development processes and disaster risk, which will need to be unpacked and further developed in each specific regional and national context.

At the beginning of Chapter 1, four questions concerning the disaster-development relationship were posed. The first two questions guided attention to the mapping of disaster risk and its relationship with development. By way of a summary, we return to them again in section 4.1. The final two questions sought ways for refining development policy and disaster risk assessment tools to enhance the practice of disaster risk reduction. These are addressed through the presentation of recommendations in section 4.2.

## 4.1 Development and Disaster Risk

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### 4.1.1 How are disaster risks and human vulnerability to natural hazards distributed globally between countries?

The DRI exercise undertook the first global level assessment of natural disaster risk, calibrated according to the risk of death between 1980 and 2000.

Four natural hazard types (tropical cyclones, earthquakes, floods and droughts) responsible for 94 percent of the deaths triggered by natural disaster were examined. The population exposed and relative vulnerability of countries to each hazard were calculated. The drought DRI was presented as a work in progress at this stage.

Results are summarised below in global terms and for each hazard type. In global terms and for the four hazard types, disaster risk was found to be considerably lower in high-income countries than in medium- and low-income countries.

### *Earthquake*

High relative vulnerability was found in countries such as the Islamic Republic of Iran, Afghanistan and India. Other medium-development countries with sizeable urban populations, such as Turkey and the Russian Federation, were also found to have high relative vulnerability. As well as countries such as Armenia and Guinea that had experienced an exceptional event in the reporting period.

### *Tropical cyclone*

High relative vulnerability was found in Bangladesh, Honduras and Nicaragua, all of which had experienced a catastrophic disaster during the reporting period. Other countries with substantial populations located on coastal plains were found to be highly vulnerable, for example India, the Philippines and Viet Nam.

### *Flood*

Flooding was recorded in more countries than any other hazard. High vulnerability was identified in a wide range of countries and is likely to be aggravated by global climate change. In Venezuela, high vulnerability was due to a single catastrophic event. Other countries with high vulnerability to floods included Somalia, Morocco and Yemen.

### *Drought*

African states were indicated as having the highest vulnerability to drought. Methodological challenges prevent any firm country-specific findings from being presented for this hazard. The assessment strongly reinforced field study evidence that the translation of drought into famine is mediated by armed conflict, internal displacement, HIV/AIDS, poor governance and economic crisis.

For each hazard type, small countries and in particular, small island developing states, had consistently higher relative exposure to hazard. And in the case of tropical cyclones, this was translated into high relative vulnerability.

### **4.1.2 What are the development factors and underlying processes that configure disaster risks and what are the linkages between disaster risk and development?**

The measurement of hazard-specific relative vulnerability for each country flagged the importance of mediating development processes in the translation of natural hazard into disaster risk.

In many countries, despite large exposed populations deaths were low (Cuba and Mauritius for tropical cyclones), suggesting development paths that contained disaster risk in various ways. For other countries, deaths were very high (Honduras and Nicaragua for tropical cyclones), indicating development paths that had led to the accumulation of catastrophic levels of disaster risk.

The analysis of socio-economic variables, available with international coverage, and recorded disaster impacts enabled some initial associations between specific development conditions and processes with disaster risk. This work was undertaken for earthquake, tropical cyclone and flood hazard. A lack of appropriate variables limited the confidence that could be placed on the analysis of drought. Consequently, no findings for this hazard are presented here.

Losses to earthquakes were associated with countries experiencing rapid urban growth and high physical exposure. For tropical cyclone, losses were associated with a high percentage of arable land and high physical exposure. Vulnerability factors associated with flood were low GDP per capita, low local density of population and high physical exposure.

Further analysis was structured around two development factors shaping contemporary disaster risk: rapid urbanisation and rural livelihoods.

Rapid urbanisation configures disaster risk through a range of factors: the founding of cities in hazard-prone locations, the concentration of population in hazard-prone locations, social exclusion and poverty, the

complex interaction of hazard patterns, the generation of physical vulnerability, placing cultural assets at risk, the spatial transformation of new territories, and access to loss mitigation mechanisms.

In general, disaster risk considerations are rarely factored into urban and regional planning and the regulation of urban growth has been ineffective in managing risk. Economic globalisation concentrates economic functions in cities that might be at risk and promotes the speedy flow of international capital — heightening inequality and instability, but also providing opportunities for building capacity and resilience.

In rural areas, livelihoods become at risk due a range of factors: poverty and asset depletion, environmental degradation, market pressures, isolation and remoteness, the weakness or lack of social services and climatic fluctuations and extremes. Global climate change makes rural livelihoods more risk-prone by increasing uncertainty.

The configuring of risk by contemporary patterns of urbanisation and rural livelihoods needs to be viewed alongside other critical development pressures. Violence and armed conflict displaces people and disrupts social and economic development. Changing epidemiologies, especially of HIV/AIDS, malaria and tuberculosis, bring new configurations of hazard. Changing governance regimes offers possibilities for the integration of international with national and local action to reduce disaster risk. The increased role played by civil society in development and disaster risk reduction highlights the capacity of local actors to organise and confront disaster risk.

The Report argues that meeting the MDGs will be made more difficult if disaster risk is not integrated into development planning. More positively, if the MDGs are met this could result in a substantial reduction of international disaster risk. Whether this is the case depends on the extent to which synergies in the disaster risk and development agendas are recognised and acted upon.

The next section advances recommendations for building a closer synthesis between disaster risk and development planning.

## 4.2 Recommendations

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Recommendations 4.2.1 to 4.2.5 propose an agenda for change in broad terms. A final section, 4.2.6, presents a more detailed set of recommendations to enhance the data collection and analysis of disaster risk that should underpin the process of integration. They emanate from the experience of undertaking the DRI.

### 4.2.1 Governance for risk management

*Appropriate governance for disaster risk management is a fundamental requirement if risk considerations are to be factored into development planning, and if existing risks are to be successfully mitigated.*

A number of key elements in governance regimes were highlighted in the Report. They deserve reiteration as critical areas for reform in building national and global disaster risk reduction capacity and in mainstreaming disaster risk management.

The detailed changes in elements of governance advocated here can be interpreted as an outcome of the influence of a particular body of rules and values, that place importance on equity in the distribution of risk, and security and widespread participation in decision-making. These are key tenets of UNDP's perspective on international development and inform the basic orientation of this Report.

There is a need for institutional systems and administrative arrangements that link public, private and civil society sectors and build vertical ties between local, district, national and global scale actors.

Legislative reform is necessary but on its own, not a sufficient tool for increasing equity and participation. Legislation can set standards and boundaries for action, for example, by defining building codes or training requirements and basic responsibilities for key actors in risk management. But legislation on its own cannot induce people to follow these rules. Monitoring and enforcement are needed.

Legislation has its strength in societies where most activities take place in the formal sector and are visible to administrative oversight. In many high-risk nations and locations, monitoring and enforcement — and even widespread knowledge — of legislation is not