

However, positive macroeconomic and livelihood effects tend to be limited to a short period of reconstruction. Following Hurricane Gilbert in 1988, Jamaica experienced a boom that reduced a potential external current account deficit of US\$ 253 million to only US\$ 38.3 million. The two main contributors to this were reinsurance flows of US\$ 413 million and foreign grant aid of US\$ 104 million. But the boom was short-lived and as reinsurance and grant aid sources of finance dried up, the impact of the disaster on Jamaica's productive capacity was felt. The following year, Jamaica recorded a current account deficit of US\$ 297 million.⁴²

These examples show the importance of using the disaster response and recovery periods as opportunities for reflecting on the root causes of disaster, and recasting development priorities to reduce human vulnerability and natural hazard. Simply reinventing pre-disaster conditions is a wasted opportunity. This is as true for the institutions of governance as it is for physical infrastructure.

1.7 How Can Development Planning Incorporate Disaster Risk?

The frequency with which some countries experience natural disaster should certainly place disaster risk at the forefront of development planners' minds. For example, Mozambique faces a regular cycle of droughts and floods: 1976-1978 (floods), 1981-1984 (drought), 1991-1993 (drought), 1996-1998 (floods), 1999-2000 (floods).⁴³

In acknowledging the importance of disaster as a development constraint, there is a danger of seeing some countries as being by their very nature more disaster prone than others. Sub-Saharan Africa is popularly associated with drought, Central America with earthquakes and the Pacific and Caribbean islands with tropical cyclones. In each case, it is not geography alone that generates disaster risk. Rather, development processes have shaped human vulnerability and hazards paving the way for disaster.

In this section, several conceptual tools are presented that help to outline the ways in which inappropriate development can lead to disaster risk.

The history of international development underlies the disaster risk of today

The roots of much disaster risk can be traced to historical development decisions.⁴⁴ Many of the world's largest cities have sprawled from sites chosen in the pre-colonial or colonial eras to cover areas exposed to earthquake, flooding and tropical cyclones. Such cities with coastal locations include Dhaka, Bangladesh; Mombassa, Kenya; and Manila, the Philippines. In Latin America, a desire to control indigenous populations or locate close to mineral resources led to a colonial preference for interior sites. Post-colonial population growth has led to a rapid expansion in populations-at-risk from earthquakes. Mexico City, Mexico and San Salvador, El Salvador are examples and the latter city remains despite being destroyed by earthquake nine times between 1575 and 1986.

Decisions taken today will configure disaster risk in the future

The influence of past development on present disaster risk underlines the significance of contemporary decision-making for the disaster risk that might be experienced by future generations. This reinforces the importance of international cooperation to manage development. For example, in the need for the international community to negotiate to mitigate global climate change, and to support the adaptation strategies of those communities and countries most adversely affected by the impacts of global climate change. The rise of sea levels is placing great strain on coastal communities and climate change enhances the difficulty of planning development. In Fiji during the 1997-1998 drought, US\$ 18 million in food and water rations had to be distributed.⁴⁵

Population movements are changing the context of disaster risk

Mass migration from rural to urban settlements has resulted in the growth of city slums, many located on unsafe land and built with environmentally inadequate construction techniques. The marginalisation of poor rural families has led to their relocation on increasingly insecure agricultural lands. Poverty levels, or the absolute number of poor and destitute persons, have increased continually with dramatic effects in terms of increases in social risk and disaster vulnerability.

Development processes modify natural hazard

Hazards are being reshaped and new hazards introduced by contemporary development trends. For example,

the conversion of mangrove coasts into intensive shrimp farming pools in many low-lying tropical coastlines in Southeast Asia and South America has increased the level of local hazard through coastal erosion and the loss of the coastal defence provided by the mangrove stands. The introduction of new technology such as chemicals into local agriculture, rising energy demands of urban centres and the international trade in hazardous waste, are all processes that have increased the complexity of hazard. Disaster risk reduction needs to be seen in the context of a wider interacting array of natural and technological hazards.

Everyday life is made up of everyday hazards

Everyday hazard can build cultures of resistance to danger. This is seen in the many coping strategies adopted by agriculturalists. But more common, particularly in rapidly growing urban settlements, is an association of everyday hazard with poverty and vulnerability. Typical everyday hazards include inadequate sanitation and drainage, health insecurity, malnutrition, unemployment and lack of stable and sufficient incomes, drug abuse and social and domestic violence. Exposure to everyday hazard in such cases can erode development potential and increase vulnerability to future hazard.

Risk accumulates before being released in a disaster

Everyday hazards and vulnerability form patterns of accumulating risk that can culminate in disaster triggered by an extreme natural hazard event. Achieving MDG 1 (to eradicate extreme poverty and hunger) and MDG 7 (to ensure environmental sustainability) will have a direct impact on reducing human vulnerability to everyday hazards and the accumulation of risk that prepares the way for disaster.

Large disasters are made up of many smaller disasters

The nested relationship between small and large disasters is called the concatenation of risk. Typically, an apparently simple, large-scale disaster will be composed of an array of smaller, contrasting hazard types. Hurricanes, for example, can trigger local floods and landslides. Building disaster risk reduction into development planning means taking into account large and small hazards.

This analysis leads one to ask some fundamental questions...

Do risk and disaster necessarily have to increase in incidence and effect in the future?

Is it possible to maintain economic growth while introducing policies to reduce disaster risk?

Is it necessary to change the overall parameters of future development models in order to reduce the possibility of future risk variables, or might significant improvements be made with more marginal changes?

This Report starts to address these issues by arguing for a reorientation in disaster reduction — to shift from an approach that focuses exclusively on reducing the impact of disasters on development towards an integrated risk management approach that *in addition* promotes forms of development that help reduce, rather than increase, disaster risk.

This does not mean that the elements of established disaster management (preparedness, emergency response, rehabilitation and reconstruction) are less important. But they should be complimented by an awareness of the role that poorly planned development can play in making momentary development gains at the expense of increased disaster risk.

Escalating human and economic costs of disaster point towards the need for policy responses that begin to identify and then tackle the root causes of risk that are embedded within contemporary development practices — as an integrated part of development policy. If lowering the base level of risk in society is possible while maintaining sustainable development goals, then investments in disaster risk reduction would reduce required expenditure on emergency and reconstruction and lessen the immeasurable human losses experienced by those that suffer disaster.

This agenda differentiates between two types of disaster risk management. **Prospective disaster risk management** should be integrated into sustainable development planning. Development programmes and projects need to be seen in the context of the disaster-development relationship and reviewed for potential future impacts on the reduction or aggravation of vulnerability and hazard. **Compensatory disaster risk management** (also termed corrective disaster risk management) stands alongside development planning and is focussed on the amelioration of existing vulnerability and reduction of natural hazard. Compensatory policy is necessary to reduce contemporary risk, but prospective policy is required for medium- to long-term disaster risk reduction.

Work is underway on developing methods for identifying the impact of individual development projects on disaster risk. The Caribbean Disaster Mitigation Project, *Investing in Mitigation: Costs and Benefits*,⁴⁶ has identified three opportunities to incorporate disaster mitigation in infrastructure investment decision-making. The first is to integrate the assessment of disaster risk into existing environmental impact assessment procedures. The second is to fully integrate natural hazard risk into the economic and financial analysis of investment projects. The third is to promote hazard mitigation when the insurance industry is called upon to underwrite catastrophic protection for the investment project.⁴⁷

It is unlikely that prospective risk management will completely eliminate all vulnerability, so compensatory risk management is set to play a long-term role in managing disaster risk. However, even here there are opportunities for planning to build resilience into vulnerable groups or investments.

1.8 Final Discussion

Achieving a more sustainable development, and one that moves towards the meeting of the MDGs, will not be possible while disaster risk management is left outside of development. The challenge for integration lies in devising the tools required for policy makers to transparently justify the closer operation of disaster and development policy.

Bringing disaster risk reduction and development concerns closer together requires three steps:

- The collection of basic data on disaster risk and the development of planning tools to track the changing relationship between development policy and disaster risk levels.
- The collation and dissemination of best practice in development planning and policy that reduce disaster risk.
- The galvanising of political will to reorient both the development and disaster management sectors.

The first two steps are perhaps the most challenging. Once the human welfare gains to be made from mainstreaming disaster risk reduction within development policy are carried out, and transparent inventories of best practice are made available, advocating for policy change becomes more achievable.

For this to be done, information gaps must be filled. As we have already emphasised, there is a dearth of basic data on disaster impacts and risks at all levels from the local to the global. Problems of mapping data are made more difficult by the dynamic nature of risk. Flux in global processes, tied in particular to economic globalisation and global climate change, and changing local conditions, including rapid urbanisation, the spread of HIV/AIDS or civil conflict, mean that disaster risk is not a static condition.

In Reducing Disaster Risk: A Challenge for Development, UNDP seeks to move this agenda forward by presenting a review of state-of-the-art information on the distribution of disaster risk at the international level and an account of key development pressures and best practice in disaster risk reduction tied to development policy.

1. ISDR 2002, *Living with Risk: A Global Review of Disaster Reduction Initiatives*; IFRC (annual) *World Disaster Reports*; Cannon, T., Twigg, J., Rowell J. 2003. *Social Vulnerability, Sustainable Livelihoods and Disasters*, DFID, London.
2. See annual editions of the International Federation of the Red Cross/Red Crescent *World Disasters Report* for a discussion of this trend. Original data sources from EM-DAT, University of Louvain, Belgium.
3. <http://www.eclac.cl/analisis/TIN53.htm#6>.
4. Benson 2002 expert contribution.
5. Source: Munich RE 2002. Topics: annual review, natural catastrophes 2002, Munich, p. 15.
6. UNDP/UNEP calculations for this Report.
7. The EM-DAT database is the only existing publicly accessible global database on disasters triggered by a natural hazard event. The strengths and weaknesses of using this database are discussed in the Technical Annex.
8. www.un.org/millenniumgoals
9. United Nations. 2000. *United Nations Millennium Declaration*, General Assembly Resolution A/RES/55/2, 18 September 2000, p. 6.
10. <http://www.undp.org/mdg/countryreports.html>
11. Sen, Amartya. 2000. *Development as Freedom*, New York, Random House.
12. Implementation of the United Nations Millennium Declaration: Report of the Secretary-General, United Nations General Assembly, 2 September 2003. *UNDP Human Development Report 2003*. <http://www.actionaid.org/ourpriorities/downloads/halfwaythere.pdf>
13. Here we can mention the High Indebted Countries Initiative (HIPC) promoted by the World Bank and the International Monetary Fund, and the New Partnerships for Africa's Development (NEPAD) in Africa and the integrated United Nations Development Assistance Frameworks (UNDAF) among others.
14. See the World Bank series of publications entitled *Voices of the Poor* and the *World Development Report*, 2000, p. 19.