

Social and economic aspects of disaster reduction, vulnerability and risk management in small island developing states

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THE NUMBER OF reported major catastrophes and their impact on social and economic development worldwide has been increasing. According to Munich Re (2003), over the last decade around 7,000 natural disasters, including earthquakes, volcanic eruptions, tropical cyclones, floods and droughts have occurred, killing more than 300,000 people and causing over US\$800 billion in economic losses. As a result of climate change, the frequency and intensity of climate-related events are likely to increase.

While all countries may be confronted with natural hazards, the poorer developing countries, in particular, are disproportionately vulnerable to those hazards turning into disasters.

This is particularly the case of small island developing states (SIDS). SIDS are particularly vulnerable to: environmental natural hazards, such as tropical cyclones, earthquakes and volcanic eruptions; internal, anthropogenic hazards, such as deforestation; external, anthropogenic hazards, such as transport of toxic wastes. Climate change will further exacerbate the vulnerability of SIDS in many ways, as the anticipated rise in sea level and temperature will lead to major water level changes and increase the risk of storm surge. This will likely cause, among other things, an intensification of amplitude and force of waves and augmentation in tidal levels, leading to increased beach erosion; and reduced resilience in coastal and marine ecosystems, such as mangroves.

SIDS are subject to excessively high impacts from natural hazards and disasters. In fact, one tsunami, tropical cyclone, or earthquake can claim lives and livelihoods, cause damage to already fragile economies, and negate years of development efforts. The aftermath of Cyclone Heta in Niue resulted in damages estimated at eight times the country's GDP. Hurricane Ivan caused damage to almost every household in Grenada.

Freshwater scarcity in SIDS

Numerous small-island-developing States (SIDS) are facing water scarcity. The availability of freshwater will be a key-limiting factor on economic and social development in SIDS. Drought, sea-level rise and natural disasters have a profound impact on fragile freshwater lenses in SIDS. Water availability is also climate-sensitive. Countries such as the Bahamas that traditionally depended almost totally on groundwater, now also have to use desalination, which contributes to their vulnerability. In addition, the economies of many SIDS are dominated by agriculture and tourism. Agriculture can cause degradation of water resources by agro-chemicals as well as harm the coral reefs; tourist hotels use excessive quantities of water; and wastewater discharges from towns and hotels, are damaging fragile coastal and marine ecosystems on which these islands rely.

The Barbados Plan of Action (BPoA, 1994) highlighted the particular vulnerability of SIDS to natural disasters and the limited abilities of SIDS to cope with and recover from their effects.

Social aspects of disaster reduction

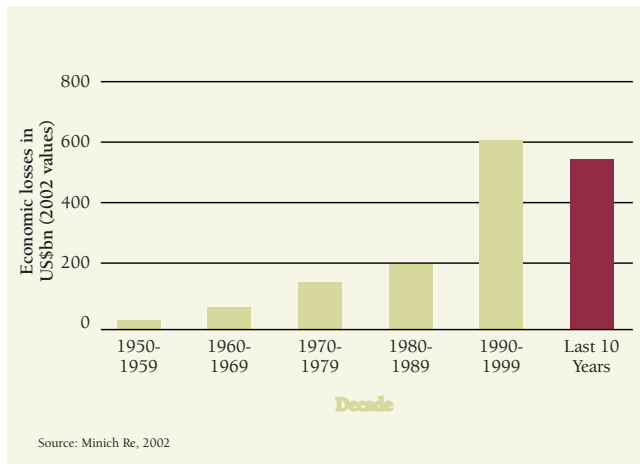
Disasters can bring poor communities into even greater poverty, as households may be forced into increased debt to rebuild homes and meet basic needs. In Grenada, Hurricane Ivan devastated nutmeg and banana crops by uprooting plantations. It takes up to ten years to re-plant, and hence all agricultural workers have been sent home, with no salary and with few social services to support them.

Disaster prevention needs to be linked to poverty reduction. It is crucial to integrate disaster risk reduction into regular development planning and poverty reduction programmes, while stimulating the social and cultural capacities of poor communities to build resiliency. For example, developing multiple income-earning opportunities for poor households can enable them to cope better with disasters. Experience from Cyclone Heta and Hurricane Ivan has shown it is important that poorer segments of the population avoid simply rebuilding in vulnerable areas, with less resilient structures. A prohibition from rebuilding in certain areas must be complemented by, for example, adequate support for building materials, job creation and diversification.

The structure of gender relations is part of the social and cultural context that shapes a community's ability to prepare for, cope with, and recover from disasters. Thus, the gender issue requires special attention. For example, in the smallest island of Micronesia, society functions have very clear gender roles. Men are responsible for things related to the ocean, women for land-based activities. These responsibilities are reflected in preparatory activities for an oncoming hazard, where men secure the technical structures, such as canoes, and women secure food and families (Anderson, 2002). Women's and men's roles and social power in different social contexts need to be taken into account to address root causes and adopt risk reduction measures in an equitable and efficient way (United Nations, 2001).

Women are disproportionately affected by natural disasters, as a result of gender inequalities. Women have high death rates in disasters, as they often do not receive warnings or other information about hazards and risks. Their mobility may be restricted or affected due to cultural and social constraints. Gender inequality can complicate and extend the time for women's recovery.

Although the low position of women in many societies, and the extreme levels of female poverty worldwide increase women's



Economic losses due to natural disasters from 1950-2000

vulnerability to disaster, women are playing a central role in disaster management in many cultures. They are an important force for change and need to be further strengthened as such.

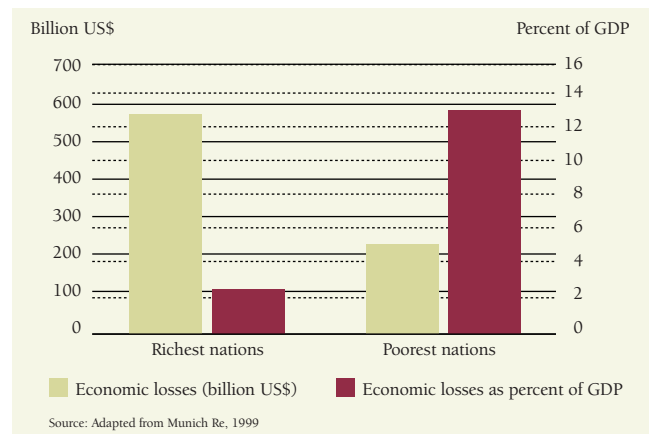
Economic aspects of disaster reduction

Over the last half century, the recorded economic loss due to natural disasters has been increasing. According to Munich Re (2002), annual economic losses related with natural disasters increased from US\$75.5 billion in the 1960s, to US\$659.9 billion in the 1990s. In fact, the reported global cost of natural disasters has increased 15-fold since the 1950s. In 2003 alone, Munich Re reported over US\$65 billion in economic losses due to natural disasters (Munich Re, 2003).

Disasters are a potentially serious shock to an economy. They cause severe short-term impacts, but when reoccurring frequently, disasters appear to have negative wider longer-term consequences for economic growth, development, and poverty reduction. There is also the paradox that the economic aid that may flow to a country devastated by a natural disaster will be recorded as an increase in GDP, thus obscuring the real economic situation in the recovery phase.

Effects of disasters on poorer developing nations are long-lasting and cause excessive disruption to the GDP (United Nations, 2004). The effects are more severe than in developed countries, often depleting scarce financial resources and diverting important funds towards post-disaster relief.

There is a need for standardisation of assessment measures for economic, social and environmental losses. When assessing losses, it should be taken into account that calculating losses in US dollars does not always accurately mirror the different value and purchasing power of local currencies. The majority of these losses are often concentrated in the developed world, due to the high financial value attached to infrastructure in developed countries. Thus, they fail adequately to present the impact of the disaster on poorer countries which often carry the greatest cost in terms of lives, livelihoods, and reconstruction. Financial losses related to infrastructure in developing countries would be better revealed by a comparison based on losses to GDP rather than expressed in dollars (Red Cross/Red Crescent, 2003). It is also difficult to measure the economic costs of social disruption. After Cyclone Heta, Niue reported that several small businesses closed for good and several families have emigrated to New Zealand, further eroding social stability. Grenada reported an increase in deaths of elderly people in the weeks after Hurricane Ivan, fuelling local speculation of the impacts of post-traumatic stress.



Disaster losses total and as a share of GDP, in the richest and poorest nations, 1985-1999

Strategies for disaster risk management

Co-ordination among national institutions improves the planning and implementation of disaster reduction strategies and activities. The involvement and collaboration of all stakeholders — decision-makers, disaster risk managers, the scientific community, civil society and local communities — is needed to effectively manage risk assessment, monitoring and dissemination of information. Developing common projects and defining a clear role for each of the players is essential.

Governments ought to integrate pre-planning, risk assessment, reconstruction and rehabilitation programmes, based on disaster scenarios, into their development plans, environmental policies and poverty reduction strategies, in order to support disaster-resilient communities. It will be important for SIDS governments to review existing plans, particularly in the light of the effects of climate change. Co-operation between SIDS regions, such as the Caribbean-Pacific Water and Climate Change Initiative are expected to further assist in this regard.

Moreover, efforts must be made for an expansion of early warning systems, and information dissemination systems, to improve forecasting and disaster related decision-making. In the case of SIDS, it is important to reinforce local broadcasting systems to help outer-island communities during a disaster. This year's hurricane season has forced a reassessment of the early warning system in the Caribbean, where many meteorological services cater mainly to the aviation services. Thus, during Hurricane Ivan, the main meteorological station in St Vincent and the Grenadines, housed at the airport, closed when the airport was shut. Disaster managers had no local meteorological data available to them during the biggest climatic event of the decade.

Insurance

Insurance can help developing countries to manage disaster risk and reduce losses. The principles and practice of insurance can play a crucial role in development by providing a mechanism for risk sharing and risk transfer.

Minimising risk can result in a reduction of the rates for insurance, which thereby become more affordable. Rates should reflect the mitigation measures undertaken by a community and individuals, such as implementation of hazard plans, forecasting and warning systems.

The efficiency of transferring or sharing risk depends upon the size of the risk pool and availability of financial instruments and services for risk management. While in developed coun-

tries stakeholders engage in risk sharing, and thereby increase the risk pool, in developing countries the size of the risk pool is smaller, resulting in inadequate insurance coverage and pay off. Thus, the implementation of specific instruments and services for risk sharing at different levels is needed. Recent initiatives have shown the potential benefits of financial risk transfer mechanisms, which through traditional insurance structures and new financial instruments, such as catastrophe bonds, weather derivatives and micro-insurance, provide the flexibility to adapt to an individual country. However, most SIDS cannot afford fully domestic insurance services, and rely to a large extent on adjacent developed country insurance companies. The effect of Hurricane Andrew in Florida therefore resulted in a large increase in insurance rates in the Caribbean, which largely went unscathed from that storm.

Local level disaster mitigation

Microfinance can provide a valuable alternative to insurance at poor household and community level. Microfinance instruments can help poor households multiply income-earning opportunities, which enables them to better cope with disasters.

Community-based disaster prevention and risk management through mitigation programmes is essential, since communities are the most seriously affected by disasters, and community-based organisations are the first to respond to hazards. It is important for governments to co-operate closely with local communities in risk management and disaster preparedness. In this regard, short-term training programs for community-based organisations can be of great assistance in building capacity at local level.

Public works programmes can provide assistance to households and communities in situations in which income-earning opportunities are limited. There are a variety of forms and application of public works programmes instruments, which can be combined, in specific situations (UN/ISDR, 2002).

National governments need to support local governments through transfer of resources based on risk assessments by sub-region. It is important to link these transfers to capital investment in prevention and mitigation. In this respect, creating partnerships with financial institutions for promoting preparedness and mitigation is crucial.

Regional level

A particular challenge is posed to disaster reduction and risk management in shared environmental units, for example over an expanse of ocean. More regional co-operation is needed. There are examples of good regional co-operation, such as the Typhoon Committee, which co-ordinates joint activities among countries in east and south-east Asia and the north Pacific regarding the monitoring and prediction of typhoons. SIDS in other regions have also undertaken efforts to establish regional mechanisms. The Barbados Plan of Action (BPoA, 1994) highlighted the importance of strengthening regional mechanisms to improve national disaster mitigation, early-warning and forecasting systems, stimulate inter-disciplinary and inter-sectoral partnerships, and the mainstreaming of risk management into the national development and planning process.

Another example is the work done to promote a Caribbean Uniform Building Code, which would ensure that all new buildings are constructed to storm-proof standards. This needs to be further enhanced by linking it to SIDS national physical infrastructure plans, so as to ensure that such storm-proof houses are not placed in vulnerable areas.

International level

During the past decade, a number of international agreements have been made to improve preparedness for coping with disasters. Adopted in 1994, the Yokohama Strategy and Plan of Action for a Safer World became a key reference for disaster reduction, comprising a set of recommended activities towards vulnerability reduction, based on principles that emphasise the importance of disaster prevention, risk assessment, vulnerability reduction, early warning, and political liability for implementing disaster reduction policies. The Johannesburg Plan of Implementation of the World Summit on Sustainable Development in 2002 pointed up the importance of an integrated, multi-hazard, inclusive approach and lists actions to address vulnerability and disaster management. The Barbados Plan of Action (BPoA, 1994) stressed the particular exposure of SIDS to natural disasters and list activities towards disaster mitigation. The use of multilateral environmental agreements is essential for SIDS to enhance disaster prevention and preparedness activities in and between island countries. In this respect it is important to use opportunities, such as the 10-year review of the Barbados Programme of Action for the Sustainable Development of Small Island Developing States, Mauritius, January 2005; and the 10-year review of the Yokohama Strategy on Natural Disaster Reduction, including the programme outcome for 2005-2015 of the World Conference on Disaster Reduction, Japan, January 2005, to take into account the specific concerns and needs of SIDS.

It is important to continue building strategic alliances with international agencies, such as the United Nations Inter-Agency Secretariat of the International Strategy for Disaster Reduction, the United Nations Department for Economic and Social Affairs (UN-DESA) and the United Nations Development Programme, as well as bilateral assistance and broad-based partnerships.

Information, public awareness and communication

Reliable data is imperative for effective disaster and risk management. Thus, the acquisition of knowledge about disasters and the establishment of information systems on risks at all levels has to be a priority. There is also a need to better document the impacts and aftermath of natural disasters in SIDS so as to better prepare disaster managers for future emergencies.

Traditional and indigenous knowledge can provide important community-based solutions to reduce the impact of disasters. In addition, communities should be encouraged to document hazards at local level, to incorporate these lessons into overall national disaster management.

Technical and scientific information on hazards needs to be disseminated in an easily understood and useable form to the public. Basic technologies such as wind-up radios enable people in remote areas to get access to such information. Training programmes and education campaigns can be used to increase awareness and preparedness within schools, families and communities. There is also a need for disaster managers in SIDS to cultivate working partnerships with the local media for effective reporting and public outreach. In the Caribbean proposals have been made for active training of the media on disaster management issues, based on the experiences of Hurricane Ivan.

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