What makes a disaster even more disastrous?

Disaster Reduction is possible

2005 was a year of natural disasters. The impacts of the tsunami in the Indian Ocean, Hurricanes Katrina and Stan, and the Pakistan earthquake prompted calls for better disaster prevention and preparedness systems. Nature's power renders us impotent, but human actions and omissions are clearly worsening the impacts of disasters in some cases. This is where risk reducing measures must lock in, as the last fifteen years of international disaster risk management show.

A few minutes after the seaquake off the coast of Sumatra, tsunami alerts flashed up on the Internet. And yet tens of thousands of people still died in the tidal wave that hours later swept the coasts of Sri Lanka, India, Thailand and other countries. In Thailand, a British schoolgirl saved several tourists' lives because she had learned about tsunamis at school. But hundreds of others failed to understand the warning signs and left it too late to flee.

In 2001, an earthquake in El Salvador triggered a mudslide which buried a new terraced housing settlement. Many blamed the construction project – which had been the subject of protracted controversy – for the disaster, claiming that it had compromised the stability of the hillside and caused environmental degradation. In New Orleans, many people, especially the poor, failed to heed the numerous warnings to leave the city. Their situation was exacerbated by the fact that New Orleans' disaster response systems, overwhelmed by the scale of the disaster and paralyzed by infighting over responsibilities, failed to rescue or supply food to many of them in time. And although plans to reinforce the levees – the artificial embankments which protect New Orleans from flooding – had been on the table for years, the work had repeatedly been postponed.

As these examples show, while we cannot prevent earthquakes, tsunamis and storms, there are many ways of mitigating their human impacts. We can help prevent natural events from turning into disasters, or at the very least, we can reduce their scale. In doing so, priority must be given to people living in poverty and developing countries, for although there is clearly a need for better disaster risk

Early warning systems must be firmly embedded in local structures. Local communities must also be sensitized to the risk.

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Dr Christina Bollin
Development Cooperation Consultant
Teltow, Germany
c.bollin@t-online.de

management systems in the wealthy countries too, it pales into insignificance compared with the deficits – economic, political, technological and social – that are apparent in poor countries. These deficits are to blame for the fact that an earthquake which would have caused moderate physical damage in the USA caused a death toll running into tens of thousands in Pakistan. There is a close correlation between disaster risks and a country's level of development. And as disasters wipe out the progress achieved through development, disaster risk reduction is a challenge which must be addressed in development cooperation as well.

Understanding disaster risk and risk reduction

Disasters only occur when natural events impact on vulnerable human beings. As well as the major disasters which feature in the international media, small-scale disasters in towns and villages cause death and economic loss every day. Human vulnerability to natural events has many causes and is generally the result of factors such as poverty, lack of knowledge, poor organization, and overexploitation of natural resources. As we cannot influence most natural hazards, our primary aim is to reduce vulnerability, thereby mitigating the disaster risk.
If disaster reduction measures are to be effective, we must identify the natural hazards which threaten human communities and also understand which vulnerabilities heighten the risk. A risk analysis is therefore an essential basis for planning and implementing risk reducing measures. These measures may be preventive (e.g. earthquake-proof construction, slope stabilization, controlled flood basins) or may permit rapid evacuation and the provision of emergency relief if disaster strikes (e.g. early warning, emergency planning). Insurance and other financial mechanisms can also expedite the reconstruction process.

What action is the international community taking?

Responding to the rising levels of losses which disasters were causing, the United Nations designated the 1990s the International Decade for Natural Disaster Reduction (IDNDR, 1990-1999). Over the course of the Decade, conceptual issues were clarified and various practical strategies trialled. The Decade prompted a major shift in priority worldwide away from disaster response to prevention and preparedness, with bilateral and multilateral organizations beginning to get involved in comprehensive disaster risk management.
Starting with Latin America, national governments and affected local authorities in developing countries also began to take more interest in preventive measures. Since 1999, the efforts initiated during the International Decade have continued within the framework of the United Nations' International Strategy for Disaster Reduction (ISDR). There is a growing recognition that a decentralized approach involving local capacity-building along with multisectoral cooperation are essential elements of disaster risk management.
A milestone was the World Conference on Disaster Reduction (WCDR), which took place in Japan in January 2005, a few weeks after the tsunami in the Indian Ocean. The Hyogo Framework for Action adopted at the conference sums up the situation in the field of international disaster risk reduction: despite major advances in the development of strategies and instruments, a wealth of practical experience, heightened awareness of disaster issues and knowledge transfer worldwide, national governments are still failing to apply preventive measures consistently and across the board.
One aspect which has been prioritized by the German Government in projects and at conferences is early warning. In addition, in its development cooperation programmes, Germany is also engaged in capacity-building for national and local partners in Latin America, Africa and Asia, with a special focus on the planning and implementation of practical prevention and preparedness measures, avoidance of new risks, and the development of political and legal frameworks to build more disaster-resilient societies (see BMZ Information Materials No. 136: *Disaster Risk Management – Contributions by German Development Cooperation,* Bonn 2004).

Lessons learned from fifteen years of international disaster risk reduction

The first and most important lesson learned from the last fifteen years of international disaster risk management is that disaster risks can only be reduced on a sustained basis by meshing tangible prevention and preparedness measures with individual and community development processes. Early warning systems, protective embankments and emergency planning are far more effective within this integrated context. For example, an early warning system or artificial embankment along a river can only help to provide long-term protection as long as the flood risk is not increased through deforestation along the upper reaches of the river and people resist the temptation – resulting, perhaps, from a false sense of security induced by the protective measures – to build new settlements in the flood area.
The key to effective disaster risk management are building standards and land-use plans which take account of earthquake and flood risks. These standards and plans must then be applied by experts and private home builders alike. It is also helpful if schools and vocational training institutions promote sensitive management of natural resources and encourage discussion of disaster risks. Government and media can also contribute changing the public's perception of risks and impart the necessary knowledge through awareness-raising campaigns. And when investing in infrastructure, the specific risks must be assessed, and this risk assessment must then feed into the decision-making process. The same applies to local and regional development planning, which must draw the right conclusions from the experience gained with the management of existing risks.
The second lesson learned from the last fifteen years is that good governance is extremely important in disaster risk management. To guarantee sustained prevention and effective protection in the event of disaster, a clear competence structure and functioning communication, coordination and control mechanisms are very important. So, too, is a transparent and participatory opinion-forming process – especially when undertaking preventive measures. Linking in with this, an intelligent division of responsibilities, know-

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The early warning system for hurricanes in Honduras

Many different types of local early warning systems for floods exist: for example, an early warning system was set up by Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ – German Technical Cooperation) in the Atlántida Department in Honduras after Hurricane Mitch and is operated by the local community using simple technology. The system proved its worth when hurricanes hit the region again in recent years. By contrast, for the conditions in place in the north of Peru a largely automated early warning system was established on the basis of a process involving the regional authorities and local communities also with support from GTZ.

how and financial resources between the relevant agencies at national, regional and local levels is also required. For example, whereas an effective national Civil Protection is essential for major disasters such as the tsunami or the Pakistan earthquake, well-trained, decentralized first response structures play a vital role in smaller-scale disasters at local level. In regional and financial planning, national provisions must dovetail with local decision-making and executive powers.

Even now, only a fraction of the funds spent on emergency relief and post-disaster reconstruction is being invested in disaster risk reduction worldwide. This is one reason why it is essential to utilize the risk management opportunities afforded by reconstruction processes. When planning the reconstruction of settlements and homes, natural hazards can be taken into account from the outset. And besides providing the requisite financial resources, reconstruction offers an opportunity to translate the enhanced awareness of natural hazards into additional protective measures.

In the context of German Development Cooperation, for example, disaster risk management projects were launched in the wake of Hurricane Mitch in Central America in 1998, the 2000 floods in Mozambique and the earthquake in southern Peru in 2002. Disaster prevention, mitigation and preparedness is now a frequent component or a cross-cutting theme of development cooperation in these and other countries, especially in rural and community development programmes.

Nonetheless, the reconstruction of Aceh and Sri Lanka in particular has revealed some of the limitations to this approach. Time pressure, local people's immediate economic needs and the highly complex tasks at hand make it more difficult to take consistent account of natural hazards during the reconstruction process. The scale of the tsunami and the improbability of such a disaster recurring in the near future also have a demotivating effect. It is helpful to draw up a priority list for disaster prevention measures based on an assessment of all the natural hazards and their relative importance. In Aceh, for example, building quality has been improved and disaster preparedness systems enhanced, which has helped to reduce local communities' susceptibility to the earthquakes and floods which frequently hit the region, as well as their susceptibility to the rarer tsunamis. Such priority measures can then be enhanced whenever possible with tsunami-specific measures (resettlement, breakwaters, early warning).

Conclusions and challenges

There are no ready-made solutions to prevent disasters from happening. Although a wealth of experience with various instruments and methods is now on hand, individual packages of measures still have to be designed for each region, tailored to local risks and political, institutional and socio-cultural conditions.

One of the major challenges is the need to constantly adapt disaster reduction measures to changes in overall parameters. Climate change is a key factor in this context, for it is modifying precipitation patterns and increasing the risk of storms or hurricanes in some regions. Social processes such as urbanization must also be taken into account.

Substantial progress has been achieved in recent years, resulting in better disaster risk management systems in a number of countries, localities and organizations. But if comprehensive, long-term prevention is to be achieved in all disaster-prone regions, local communities' awareness must be raised and disaster risk management and prevention systems embedded at institutional level. This can have a significant and positive impact in terms of poverty reduction and the attainment of the Millennium Development Goals. The key challenge is to promote decision-makers' political will to engage in disaster risk reduction and build the necessary capacities at all levels. In Japan in January 2005, the international community pledged to support these processes in developing countries. It can do so by setting a good example and consistently integrating disaster risk management into its own planning and monitoring processes.

In many cases, decisions in favour of disaster prevention and mitigation are made more difficult because it is impossible to predict when and to what extent the investment will pay off. The less frequent the events and the less predictable, the more difficult it is to opt in favour of prevention and mitigation. This is especially true of poor regions, but as the Hurricane Katrina in New Orleans showed, it applies to wealthy countries as well. It is very important to collect best practices and monitor their tangible outcomes as a means of encouraging others. The impacts of Hurricane Stan which hit Central America in late 2005 are a good example: in the aftermath of Hurricane Mitch in 1998, numerous local, national and Central American disaster risk reduction initiatives were launched with support from the international community. Hurricane Stan offers the chance to assess the positive impacts of these initiatives, thus motivating other actors to adopt prevention measures as well.