Helpless Caesars of Technology

Disasters are of all ages. When they strike, more often than not they strike suddenly and ruthlessly. The damage disasters cause fills us with deep awe for the unimaginable forces natural phenomena are able to release. For a short while we bow our proud heads and feel very small and diminutive: how little control we â€“ Caesars of technology â€“ have over natural forces!

The Christmas 2004 tsunami disaster is unprecedented in terms of the amount of sudden loss of life, injured victims and demolished constructions. However, in terms of economic losses, this natural disaster, which did overwhelmingly affect nearly every coastal zone of the Indian Ocean, seems to be of a quite modest extent. Indeed, the ratio of actual damage and financial losses in the poor regions of the world is much more profound than in the richer ones. This seems to be an unavoidable social phenomenon, notwithstanding its unfairness. (An impressive overview of the impact of the Christmas tsunami as seen from space can be found on page 36 of this issue. The compilation is brought together by regional correspondent Dr Bharat Lohani from IIT Kanpur, India, and co-workers.)

Pre-disaster Stages
Together with the Yangtze River summer flood of 1998 and the 2001 and 2003 earthquakes hitting Gujarat, India, and Bam, Iran, respectively, the Christmas 2004 tsunami disaster shows that management of natural disasters is urgent and should be given high priority on the international agenda. Disaster management involves many diverse activities. These activities can be grouped into five subsequent stages. The first stage concerns assessment: inventorising the sensitivity of the region to certain types of catastrophes. In this stage the risks and danger for human life and environment are determined. The second stage involves mitigation. When the risks and danger are known, one may start to take provisions to make the region less vulnerable to the occurrence of the catastrophes to which the area is sensitive. Proper land use planning and management, and taking strengthening provisions are the actions to be carried out here. In the third stage â€“ preparedness â€“ planning of emergency aid and development of scenarios and monitoring systems are central together with the establishment of early warning systems.

Post-disaster Stages
The urgency of the activities in the above three stages is often hard to understand, because they have to be carried out when the sky is still seemingly cloudless. Nothing has happened yet; there is no urgency to force authorities to put effort into these activities. Given the necessary financial resources and all the other priorities many countries are facing, authorities will thus often feel no drive to come into action. This is apparently different from the fourth and fifth stage. Now, the catastrophe has actually struck. Thus authorities cannot afford to keep their hands crossed; the gravity of the catastrophe creates an obligation to respond rapidly. The fourth stage â€“ response â€“ is the most dramatic stage. The catastrophe caused unthinkable human suffering and environmental damage. Rescue teams will attempt to save lives, injured people will be cured and nursed, and relief will be offered to sufferers by food support and provisional housing. This stage is world news for a few weeks and given high priority by all news stations all over the world. The dramatic images displayed during these days are sometimes all that the general public will remember of the disaster for many years. When the general public has gone back to the order of the day, the fifth stage arrives: recovery.

Recovery
In the recovery stage, actions are undertaken so that survivors can, in the foreseeable future, pick up their daily lives again. This stage thus mainly consists of revitalisation and reconstruction. Houses are rebuilt; roads and railroads as well as other works of infrastructure are repaired. An important although often neglected part of this stage is strategic development; this means tackling the question of how to prevent the area from future disasters in order to secure a safe and sustainable future. An essential part of this tail stage is thus that it acts as a driving force and fosterer for starting and keeping vivid the initial stage: assessment.

Willingness and Prioritising
The frequent occurrence of disasters is an undeniable fact of life that we have to learn to cope with. Prior to, during and after a disaster, taking appropriate action is critical. For that the right information should be available at the right time to the right persons. The appropriateness of information depends on:

- the type of disaster one wants to cope with
- which of the above five stages the information is needed for
- the geographical scale of the disaster: local, zonal, national, continental or global.

The Geo-ICT community has produced and continues to produce floods of satellite and other accurate, timely and detailed data. All these data are well suited as sound foundation for disaster management. The Geo-ICT community has also developed and continues to develop sophisticated technology to process and analyse the data in order for it to arrive at the right information at the right time and to disseminate it to the right persons.

Disasters are of all ages. Although they often strike ruthlessly, we are not helpless and without means of protection. Today, a proper approach has become mainly a matter of willingness and prioritising rather than of technology.