When access to information may mean the difference between life and death

Julian Hunt and **Joy Pereira** urge investment to improve communication in disaster-prone societies

The impact of natural disasters, caused by multiple geophysical hazards, is greater in Asia than on any other continent. This is true both in mega cities and rural areas – particularly near coasts, unstable mountain slopes and volcanoes, and deserts.

Even though casualties are reducing as a result of technology and management, economic losses are increasing, especially in areas with rapidly growing populations. As the United Nations climate change conference in Qatar, which opens today, will be reminded, disasters and the loss of agricultural production become even more acute as a result of weather extremes, sea-level rises and other effects associated with climate change.

To be sure, major geophysical events have also struck in countries at higher latitudes; Hurricane Sandy in the Americas devastated farms in Haiti, which had already been hit by the 2010 earthquake. The economic and social consequences of disasters are generally worse in less developed countries.

The Qatar summit will be negotiating levels of funding for adaptation to climate change. And this must include dealing with natural disasters at every stage – before, during and after.

Such funds should be spent not only on infrastructure, but also on maintaining resilient and usable communications and internet technology that could provide better warnings, and improve community involvement and real-time management.

With two-way communication between communities and central organisations, assistance can be provided more rapidly and effectively. Forecasts and advisory information are communicated to people in affected areas, through public broadcasts, specific radio messages (for example, to fishermen), and increasingly through the internet and social media. Many countries are now strengthening the structures that support communication systems.

During the post-disaster recovery phase, input from local communities is equally vital

Even for hazards such as earthquakes and volcanoes that cannot yet be predicted, effective, life-saving advice can still be provided – such as with improved warning procedures following the Asian tsunamis in 2004. Social media is equally important in these situations.

Technology alone is not sufficient. For example, accurate real-time forecasting of wind, waves and flooding is possible. Thus, the path across the Indian ocean of Tropical Cyclone Nargis in 2008 was well predicted, yet there were thousands of casualties in the remote communities of Myanmar because there were no telecommunications links to provide warnings based on these predictions.

The Nationwide Operational Assessment of Hazards in Manila is pioneering the two-way use of mobile phones during multiple disasters that occur in the Philippines, so experts at operational centres receive informal observations from individuals.

For example, data about water levels in streets, and damage that is occurring as a result of flooding, is particularly valuable in large urban areas. Even tide gauge data, supported by remote sensing from aircraft or satellites, plus the most detailed, best-in-class flood computer models, requires updates of water depth and estimations of the direction and strength of currents, as they are affected by obstructions caused by collapsing buildings and floating trees, and vehicles.

With this informal but useful data, computer predictions can be corrected and then communicated to affected communities.

During the post-disaster recovery phase, input from local communities is equally vital. This can help with the allocation of funds and clear advice about better protection for the future.

Governmental agencies are increasingly aware that even when official communication channels exist in affected areas, informal information may be more timely. News of flooding along rivers that cross borders, for example, can sometimes be more quickly disseminated by mobile phone between communities than by formal channels, which are still too slow and can sometimes be non-existent.

Through the internet, communities can also collaborate with the government in publicising unregulated sources of pollution, or destruction of biodiversity. This role can be critical for preserving environmental safeguards, such as sand dunes that protect coastal communities against storms and tsunamis, which were wantonly removed along the Sri Lankan coast before 2004 and is happening now in Vietnam.

Clearly, the socialisation of environmental technology throughout Asia and elsewhere will save many lives and can have enormous benefits. This transformation will probably happen anyway, but governments need to be brave to make it happen sooner.

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