One year after the Tohoku earthquake: A review of the disaster and its consequences

I  Disaster balance

The repercussions of the threefold disaster have demonstrated how vulnerable society and the economy are. Japan's worst earthquake ever ravaged the north-eastern coast of the country's main island, Honshu. The quake was followed by a formidable tsunami. More than 15,800 people were killed, whole towns were devastated (300,000 houses destroyed, 600,000 buildings damaged) and the severe nuclear accidents at the Fukushima reactors were triggered. With losses of over US$ 200bn for the economy, the event is the most expensive natural disaster in history. It caused insured losses in the range of US$ 35–40bn.

In the case of Japan, the state itself has to shoulder at least an estimated 85% of the economic losses in the country in the wake of the disaster. The insurance and reinsurance industry could play a much bigger role: the condition for this would be premiums that are commensurate with the risks and the requisite risk transparency.

II  The risk situation in Japan

One year after the quake, Munich Re's earthquake experts are in the process of redefining the risk situation in Japan. They have analysed the quake patterns observed in the course of the year and identified significant changes for the risk posed by earthquakes: it can be assumed that there will be an increase in the rate of seismic activity for several years to come. Earthquakes with magnitudes of up to 7 on the Richter scale are to be expected with increased probability in the region hit last year. Seismic stress release can even occur in regions that are 200 to 300 kilometres further inland. The analysis has come to the overall conclusion of an increased risk for the region around Tokyo.

Ludger Arnoldussen, Munich Re Board member responsible for the Japanese market: "The probability of a medium-sized earthquake with a magnitude of 7 and epicentre in the greater Tokyo region has risen significantly for the coming years. In view of the concentration of values in this area, our assessment must also have consequences for underwriting. We entered into intensive talks with our clients at a very early stage." In the forthcoming negotiations in respect of treaty renewals in Japan as at 1 April 2012, the latest findings will be translated into concrete requirements. Both proportional and non-proportional treaties must take this increased loss expectancy into account. Natural catastrophe business – a core reinsurance business area – will therefore be a prominent feature of the renewals. Munich Re expects prices to continue rising.

The recent concentration of severe earthquakes around the world (Chile in February 2010, New Zealand in September 2010 and February/June 2011) is a coincidence. At the same time, the possibility of extreme scenarios such as magnitude 9 quakes must receive more attention all around the world and be factored into preventative measures. However,
broadening the view to encompass the worst-case scenarios does not automatically lead to higher anticipated losses.

III  The consequences of the disaster extend far beyond Japan's borders

- The benefits and limitations of prevention and early-warning systems were made clear in Japan: the stringent quake-resistant building regulations in Japan proved successful. In particular, houses outside the tsunami zone that were built after 1981 escaped with minor damage. The high-rises in Tokyo swayed for several minutes due to the quake but were hardly damaged at all. The highly efficient early-warning system with an advance warning time of 15 to 20 minutes and the (probably globally unique) extremely massive protection walls were instrumental in reducing the number of victims. Nevertheless, thousands of people lost their lives in the tsunami. The sole possibility of preventing such catastrophes would be a general ban on construction in particularly exposed coastal regions. Centuries ago, the people of northern Japan chiselled warnings into standing stones to remind their descendants about the borders for safe construction. The stones were erected after the major tsunamis in 1611 and 1896.

- The complex interdependencies in the global production world entail substantial risks. The consequences of the earthquake were not restricted to Japan alone. In addition to the property damage in impacted areas, the insurance of so-called Contingent Business Interruptions (CBI) also harbours the risk of a further high accumulation potential: CBI insurance protects companies against losses from interrupted business operations when a supplier cannot honour its delivery obligations due to material damage at one of its production sites. Damage suffered in particular by automotive and high-tech industry suppliers due to the Japanese earthquake led to production downtimes all over the world. In future, transparency with regard to major suppliers and their locations, together with targeted limitations, will be indispensable for a reliable calculation of the risks ensuing from this type of insurance coverage. In dialogue with its clients, Munich Re will prime the scope of cover for such concepts to make sure that CBI remains insurable in the long term.