

The Geneva Association: The world after Japan's March 2011 natural disaster

Much has been discussed and probably a fair number of lessons have been drawn from the tragic disasters that hit Japan in March this year. In this extract taken from The Geneva Association's Risk Management papers, **Mr Katsuo Matsushita** of **The Geneva Association**, gives us six risk adaptation and risk scenario perspectives and implications.



On 11 March 2011, Japan suffered a devastating earthquake and tsunami on its north-eastern coast. Even though, Japan is known for its high seismic activity, and had suffered a previous devastating earthquake in Kobe, in January 1995, this event is quite different from the 1995 calamity.

First of all, the tectonic plate movement was much larger, with a fault zone rupturing through the prefectures of Iwate, Miyagi, Fukushima and Ibaraki, measuring some 500 km in length and 200 km in width. It caused a huge tsunami, with waves of up to 38.9 m at Aneyoshi, hitting coastal cities and towns in these prefectures. The total number of victims is likely to be in the region of 28,000, versus 6,400 for Kobe; most of these fatalities have been caused by the tsunami.

Even though the Fukushima nuclear plant stopped automatically and structurally withstood the magnitude 9 quake, its cooling system was damaged by the tsunami. This failure and the ensuing problem and patchwork of interim solutions have created significant difficulties in containing radiation from the plant. Due to the Fukushima plant problem and other thermal plants being suspended, electric power is in short supply, including in metropolitan areas. While business activities in Tokyo have resumed normally, this power shortage is partly affecting transport, manufacturing and discouraging household consumption.

While GDP produced in the affected prefectures represents less than 5% of Japan's total GDP, some manufacturing facilities/factories of highly specialised parts are located in the affected zones. The suspension of their operations is adversely affecting not only domestic supply chains, but also final assembly makers located in other nations.

What are the implications to future risk scenarios?

1. Social cohesion as the basis of solidarity in the face of the national crisis.

While younger generations are generally viewed as self-serving, they have shown solidarity towards victims and the hard-hit areas. This may be due to social cohesion in Japanese society where the income/wealth gap between rich and poor is relatively narrow. Also, Japanese people have been encouraged by and are grateful for the solidarity and kind offer of help from many countries.

2. The wake-up call to politicians and government

Japan has been suffering from weak political leadership in the past five to six years. The Democratic Party of Japan (DPJ), which has been the ruling party since September 2009, has been busy with intra-party struggles, and the Liberal Democratic Party (LDP), which was the ruling party for 50 years until 2009, has been allocating most of its energy to pushing DPJ into a corner in order to have another national election.

A weak government means weak leadership in crisis management. Even if there were national Chief Risk Officers, they would not function well under weak political leadership.

At the early stages of rescue operations, coordination between the central government, prefectures and cities was not managed well partly due to the fact that, in some local cities, nearly a third of the staff lost their lives in the tsunami. Unfortunately, timely and flexible actions were deterred due to the difficulties and lack of coordination.

Coordination among governmental agencies in Tokyo was also insufficient because of DPJ's motto that "politicians, rather than bureaucrats, should lead everything".

Public communication by the government gained low scores as well.

The size and scope of the human loss and damage mean that all participants in the rescue efforts are on a steep learning curve and the situation is hopefully getting better.

3. Insurance companies: longer- versus shorter-mind-set

Generally, the Japanese public and the government are not concerned about the financial condition of the insurance

industry and its ability to pay out in the case of catastrophes. This is partly due to the risk transfer to international reinsurers.

It is worth noting, however, that the financial buffer accumulated by insurance companies is contributing to this situation. For example, in the earthquake (EQ) insurance scheme for residential houses managed as public and private partnership under special law, the government and the insurance industry have special statutory reserves of JPY1.3 trillion (US\$16.9 billion) and JPY1.0 trillion (US\$13.0 billion) respectively, enough to compensate affected policy-holders.

In the commercial risk sector, EQ cover is provided as endorsement or rider. Again, reinsurers share the burden, but ceding Japanese insurance companies offset retained portion of losses booked on Profit and Loss statement by releasing the catastrophe reserves. The total industry-wide amount of this reserve as at March 2010 was JPY2.6 trillion (US\$32 billion).

For several years, the insurance industry and regulators in Asia and some States in the US have showed interest in the concept of such a reserve. The question is that, in the wake of the devastating quake and tsunami, do they seriously consider introducing this reserve?

In Japan, consensus is that ex-ante reserving is a viable and better option since funding after the occurrence of huge natural catastrophes would be difficult. Also, this reserve becomes more viable if the public turns its focus more on insurers' function as a form of social infrastructure rather than as simply a stock company.

This reserve responds to one in 10, 20, 30 or 100-year events, being accumulated and partially released in longer time horizons as a kind of 'inter-generational reserve'.

However, this reserve may conflict with the current general mind-set of investors, analysts or media that tend to view the performance of insurance companies in a shorter time frame.

The calamity may increase the demand of catastrophe cover among policy-holders. But they may require clearer value of and rationale for the additional premiums charged for lower frequency risk. The question is how we should demonstrate the value to policy-holders.

4. Implications for supply chain security versus efficiency of capital and inventory.

Supply chains, both domestic and international, were affected, especially in automobile and electronics. The so-called just-in-time inventory system originally conceived and developed by Toyota is now widely used internationally in supply chains.

Do the weaknesses of such systems demonstrated by the huge quake offer us a lesson on economic efficiency versus security? Clearly, with such systems, companies must manage the amount of cash in hand to cope with interrupted sales and reduced profits.

5. Political pressure against nuclear power plants and reduction of GHG

Many developed countries are dependent on nuclear plants for electricity: France by 70%; Germany by 25%; and, Japan by 30%.

With an in-depth analysis of the Fukushima plant case, the gap between public perception and reality about the security and safety of nuclear power will be seriously dis-

cussed. The implications of this for the countries' power mix will be challenging, lending weight to the growth in renewable and clean energy investment.

For the short-term at least, voters' concern and opposition to nuclear plants may increase. This will make the international negotiation process of Greenhouse Gas (GHG) reduction more complicated and unpredictable, thus impacting further climate risks.

A further one-off consideration is the quantity of debris, waste wood, fishing boats and flammable materials left after the tsunami attack. With the completion of rescue efforts, this issue must be solved in a way to minimise its environmental impact.

6. Implications to risk scenarios

Today, one has to think beyond the box, to foresee future potential case scenarios, especially with multiple risks emerging simultaneously in Japan – the earthquake, the tsunami, fire in oil deposit sites, radiation and power shortages which interrupt transport or factory operations, etc.

Liability and its funding related to, or caused by, natural catastrophes may potentially become a major agenda item, especially regarding radiation from nuclear plants.

As an important lesson learned from Fukushima nuclear power plant case, executive officers and board of directors of any company must substantiate "boundaries of thinkable risk and crisis" much more robustly.

In Asia, industry people are shocked by the scale of damages in Japan, a country they have been looking at as a model of preparedness and adaptation. This will give an incentive to expedite adaptation and mitigation plans, including public and private sector partnerships.

As for adaptation, we may say that we can respond to earthquakes by strict enforcement of the building and zoning codes. However, it is more difficult to adapt to tsunamis. Japan, a country that highly values the right to land ownership, may restrict such rights in order to make people build houses on higher coastal land.

As one can see, the March 2011 event has a high impact on risk adaptation and mitigation, especially with the multiplication of different case scenarios. This disaster, along with other global scale natural catastrophes in 2010/11, have made the public, governments and the insurance industry more fully aware of the need to develop alternate strategies and think beyond what we have been used to up until now. All actors will also need to be stricter when it comes to developing and enforcing security measures. We have all been affected by the latest events, and the risk landscape has changed forever. ■

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The team of The Geneva Association expresses its sympathies to the people of Japan for the loss and suffering experienced in the earthquake and tsunami and the subsequent disasters that have hit Japan. We convey our sincere condolences to the families of those who have lost their loved ones and colleagues, or are suffering from the aftermath of the natural catastrophes.

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