Flood Focus: Vietnam

Vietnam is one of the important high growth economies in Asia. Because of its consistent GDP growth, it is regarded as one of the best performing economies in the world. Over the last decade, the country’s real GDP growth has exceeded 5%, reaching as high as 7.8% in 2004. Vietnam’s business hubs are concentrated in and around Hanoi, Hai Phong and Ho Chi Minh City. In the event of flooding, the proximity of these cities to the coast or floodplains of major rivers means they could suffer major economic and insurance losses, in addition to the consequent social impact.
Flood Focus: Vietnam

Using Swiss Re’s models and detailed hazard data available in CatNet®, we have analysed the potential impact of flood risk and other natural perils for Vietnam’s major urban areas. This analysis is based on Swiss Re’s report “Mind the risk – A global ranking of cities under threat from natural disasters”, which compares the human and economic exposure of 616 cities around the world. This study identifies Hanoi, Hai Phong and Ho Chi Minh City as the key flood hotspots for Vietnam. These urban areas are home to approximately 16% of the country’s population and contribute around 50% of its GDP. In addition, they are responsible for a total of 5.3 million of Potentially Affected Population (PAP) to river floods and 1.7 million to coastal floods.

Vietnam’s topography increases flood hazard

Almost two-thirds of Vietnam’s population is exposed to various natural catastrophes including tropical cyclones, floods, tornadoes and droughts. Flooding (river, coastal and flash floods) is the most severe and frequent natural catastrophe in Vietnam. Apart from the consequent loss of life, flooding causes significant damage to property and crops every year. According to Swiss Re’s internal study on global hidden flood hotspots, Vietnam is currently ranked tenth in the world.

Vietnam’s complex geography – with a long coast (about 3,200 km), river deltas in the north and south, and mountains in the central part of the country – means it is vulnerable to various types of flooding. As Vietnam is located in the tropical monsoon region, heavy rainfall can cause severe river flooding in and around the Red River in the north and the Mekong River in the south. In November 2008, persistent and prolonged rainfall caused widespread inundation in many cities, including the capital city of Hanoi. The city was badly affected with major disruptions to its critical infrastructure. More recently, in September 2013, the Mekong River burst its banks and caused widespread inundation in southern Vietnam and neighboring Cambodia. Two hundred and eighty deaths occurred and damage was reported to approximately 160,000 buildings and 25,000 km of roads.

In addition to river flooding, Vietnam’s long and low-lying coastal areas are exposed to storm surges associated with tropical cyclones. While southern Vietnam experiences fewer tropical cyclones compared to the northern and central regions, this does not necessarily mean that the south is less vulnerable. For example, Typhoon Linda in 1997 caused extensive damage to southern Vietnam, with about 3,000 people estimated killed. In addition to storm surges, thunderstorms and heavy torrential rainfall associated with typhoons can also cause devastating flash floods, particularly in inland areas. In 2009, heavy rainfall from Typhoon Ketsana and Typhoon Mirinae triggered massive flooding in central and southern Vietnam with major losses of human life and property.

Vietnam

| GDP 2014 (nominal in USD billions)          | 185.8 |
| Real GDP growth (2004–2014)                | 6.3%  |
| Foreign direct investment net inflows as % of GDP (2013) | 5.2%  |
| Subsidiaries of foreign companies          | 11,327 |
| World rank flood hotspots                  | 10    |

Source: The World Bank, CEIC, Swiss Re Cat Perils, Swiss Re ER&C

Flood risk: the human, economic and industrial impact for Vietnam’s major urban centres

Ho Chi Minh City, the commercial capital of Vietnam, contributes about 30% to the national GDP. The greater Ho Chi Minh city area has a long coastline and accounts for most of the PAP (1.3 million) for coastal floods in Vietnam. The importance of this city for Vietnam’s economy is also reflected in the index value of working days lost relative to the national economy for coastal flood risk. This index from the “Mind the risk” publication ranks Ho Chi Minh City second among the 616 global cities analysed, ahead of other high growth commercial areas in Asia such as Shanghai and the Pearl River Delta.

Hanoi, the capital city in the north, is the country’s second largest city. Located along the Red River, it is the Vietnamese city most exposed to river flooding, with more than 2.5 million potentially affected persons. Since it is 90 km inland, it is not known to be at high risk for coastal floods.

Hai Phong, an important sea port in the north, is the country’s third largest city. Located along the coast, it is exposed to both river and coastal flooding, with nearly 0.4 million potentially affected persons to each type of flooding.

Human impact

Millions of people potentially affected by flood

<table>
<thead>
<tr>
<th></th>
<th>Ho Chi Minh City</th>
<th>Hanoi</th>
<th>Hai Phong</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal flood</td>
<td>1.3</td>
<td>2.3</td>
<td>0.4</td>
</tr>
<tr>
<td>River flood</td>
<td></td>
<td>2.6</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Source: The World Bank, CEIC, Swiss Re Cat Perils, Swiss Re ER&C

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Industrial parks also at risk

Vietnam is a growing industrial hub and currently hosts many manufacturing and high-tech companies from around the world, spread across approximately 400 industrial parks. As the map shows, industrial parks in the north are concentrated in the Red River Delta and around Hanoi and Hai Phong. Industrial parks in the south are concentrated in the Mekong River Delta, mainly around Ho Chi Minh City. The northern industrial areas mainly consist of heavy industries and state-run enterprises, with most foreign industrial investment located in the south. There are also many industrial parks along the coast in central Vietnam around the Danang area which are prone to both coastal and river floods. Of Vietnam’s industrial parks, 27% are at risk of river flooding and 10% are at risk of coastal floods. Of all locations, about 22% are at risk from both river and coastal floods.

Exposure of industrial parks to various flood risks

Economic impact

<table>
<thead>
<tr>
<th>Coastal flood</th>
<th>River flood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ho Chi Minh City</td>
<td>Ho Chi Minh City</td>
</tr>
<tr>
<td>Hai Phong</td>
<td>Hanoi</td>
</tr>
</tbody>
</table>

Value of working days lost* in absolute terms

Value of working days lost* relative to national economy

* Global index from river floods and coastal floods (Global index: 0.0–1.0)
Flood Focus: Vietnam

Nat Cat Protection
In Vietnam, flood insurance protection is automatically covered under package policies and most fire policies are extended to include all perils cover. However, only a small percentage buy property insurance coverage in the country. The country has a mix of insurance carriers comprising domestic and foreign/joint ventures.

Ample opportunities to narrow the protection gap
Flooding poses a considerable risk to Vietnam both socially and economically. While economic losses can run to hundreds of millions of US dollars, insured losses typically do not exceed USD 10 million. For example, Typhoon Mirinae in 2009 caused reported economic and insured losses of around USD 280 million and USD 10 million respectively. These numbers suggest that only a tiny percentage of overall potential economic losses due to flooding are insured. This gap looks set to widen further given the expected economic growth in the region.

Given the country’s large protection gap in regard to natural catastrophe insurance, such risks may put a substantial strain on society, individuals and the economy. The problem of under penetration can be addressed by introducing innovative insurance solutions, also geared towards end users. Swiss Re has a long history of actively engaging corporations, governments, and regional development banks to develop natural catastrophe solutions that make a real difference to thousands of people around the world. For example, Swiss Re was one of the contributing partners in the first sovereign catastrophic insurance solutions in Asia Pacific (Pacific Catastrophe Risk Insurance Pilot).

Active dialogue vital
Swiss Re has been partnering with the Asia Development Bank (ADB) and other organisations in projects that study disaster risk financing solutions for cities in Vietnam, Indonesia and the Philippines. It is important that an active dialogue commence between insureds, insurers and local authorities to make risk management more effective and efficient. Combined with better natural hazard and exposure information, such an exchange would increase transparency and help to identify effective physical flood mitigation measures and appropriate insurance solutions for the region. More broadly, the large loss potential in Vietnam highlights the need for improved and more detailed flood hazard and exposure information in high growth markets. This is essential for the development of effective natural catastrophe solutions for a region.

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Insurance protection gap* in Vietnam

<table>
<thead>
<tr>
<th></th>
<th>Insured losses</th>
<th>Uninsured losses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vietnam</td>
<td>1.3</td>
<td>98.7</td>
</tr>
</tbody>
</table>

* Insurance protection gap has been estimated based on economic and insured losses from major catastrophic events in the country during recent years.

1 Generally policies are designed in two ways 1) standard package policies, which include all perils and 2) fire policies, which offer fire and can also be extended to cover other perils.
2 Swiss Re Sigma 1/2010

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