## AIR Currents Special Edition

## The Cyber Grey Area: Challenges of an Emerging Market

As an emerging market, cyber insurance suffers from a lack of standardisation that leaves the industry navigating an operational grey area full of incongruities—especially when faced with unprecedented events. With the number, types, and complexity of cyber attacks on the rise; the amount of information stored and sent digitally continually growing; and the Internet of Things expanding; the need for effective, flexible solutions for cyber risk management is more pressing than ever before.

## CYBER POLICIES AND "HIDDEN COVERAGE"

There is, as yet, no one definition of cyber risk, and no widely accepted "standard" cyber insurance policy in the industry. Pricing and coverage varies greatly, exposure is difficult to assess, and competitive or market rate analyses are challenging at best. The grey area of cyber risk includes two types of "hidden coverage."

First, insureds tend to seek coverage under cyber policies for anything not explicitly excluded, incidents that may not have been considered in pricing decisions. Second, for losses not covered by cyber policies, insureds will try to "find" coverage under their other policies. For example, a lawyer could invoke Errors & Omissions (E&O) coverage if a mistake were made by an insured and a cyber event occurs.

The structuring of cyber policies varies, too. Both occurrence policies (which cover incidents that occur during the policy period) and claims-made policies (which also require the claim to be made during the coverage period) are used, since some cyber breaches are identified promptly while others may go undetected for months or even years.

## NOT IF, BUT WHEN AND HOW

It is no longer a question of if your company will encounter a cyber claim, but when it will happen and how (and if) it will be covered. The wording and structure of your policy offerings will affect potential coverage, as is demonstrated with real-world examples in the table below.

## **MANAGING YOUR CYBER RISK**

The standardisation of cyber policies remains years away, but the need for cyber risk management is evident now. To provide effective risk management tools for this emerging and diverse market today, AIR prioritised flexibility in developing the Verisk Cyber Exposure Data Standard and Open Source Cyber Scenarios. Instead of being limited by broad-brush assumptions about what is covered, companies can specify cyber perils and policies relevant to their offerings to address many of today's cyber risk management challenges.

SEPTEMBER

Reported cyber events that caused actual losses for the impacted businesses and the policies under which the losses may be covered

POSSIBLE COVERAGE LINES
Commercial Crime,
Commercial General Liability
(CGL), Cyber, Not Covered
Contingent BI, Property BI,
CGL, Cyber, Not Covered
Directors & Officers (D&O),
CGL, Cyber, Not Covered
D&O, CGL, Medical
Malpractice, Cyber, Not
Covered
Commercial Crime , Theft,
CGL, Cyber, Not Covered

## Monte Carlo



THE CYBER GREY AREA: CHALLENGES OF AN EMERGING MARKET	
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## Innovative New Global Pandemic Financing Mechanism Leverages Catastrophe Modelling

During the 2014 West Africa Ebola Outbreak—which has killed more than 10,000 people and infected nearly 30,000 in two years—the World Bank recognised the need for a means to quickly disburse funds to confront fast-growing epidemics.

Working with the World Health Organization and other public- and private-sector partners, the World Bank developed the Pandemic Emergency Financing Facility (PEF), a financial vehicle for quickly disbursing "surge funding" to low-income countries and countries with weak healthcare systems. To better understand the risk associated with PEF transactions, the World Bank engaged AIR Worldwide to provide the risk modelling.

### URGENCY FOR PANDEMIC INSURANCE

According to the World Bank, pandemics are "one of the most certain uninsured risks in the world," a risk that not only can kill thousands, but also can impact the financial stability of affected countries and slow global efforts to end poverty. A moderate-to-severe pandemic could carry an annual global cost of USD 570 billion, 0.7% of global GDP, while one as catastrophic as the 1918 Spanish flu could cost upwards of 5% of global GDP.

Pandemics are preventable in most cases, if sufficient financial and medical support is quickly committed to an epidemic. Unfortunately, a sizable funding gap often exists between the resources available when an outbreak occurs and when the outbreak has reached a crisis level—which was the case with the 2014 Ebola pandemic.

## PEF SPEEDS RESPONSE

The robust and innovative PEF combines funding from reinsurance markets with the proceeds of World Bank

pandemic catastrophe bonds and a complementary "cash window" to promptly meet monetary needs for supplies, facilities, and manpower. International agencies responding to outbreaks can also be eligible for PEF funding.

Expected to be operational during 2016, PEF will provide up to USD 500 million of coverage through an insurance window for an initial three-year period. The replenishable USD 50-100 million cash window will facilitate response to pathogens that might not qualify for the insurance coverage.

Diseases covered by PEF include new influenza pandemic virus A, B, and C; SARS and MERS; Ebola and Marburg; and other zoonotic diseases, such as Crimean Congo hemorrhagic fever, Rift Valley fever, and Lassa fever. Although PEF is the first such program to insure pandemic risk, the World Bank already has been involved with a number of successful initiatives to pre-finance climate and natural disaster risk using an insurance mechanism. Examples include the Caribbean Catastrophe Risk Insurance Facility (CCRIF), the Pacific Catastrophe Risk Facility (PCRAFI), and the Turkish Catastrophe Insurance Pool (TCIP).

### MODELLING TO CLOSE THE PROTECTION GAP

In addition to saving lives and lowering the cost of pandemics by speeding the response to outbreaks, PEF could help foster a pandemic insurance market, which in turn could add incentives to improving public health systems and pandemic preparedness. As a component of the World Bank PEF initiative, catastrophe modelling has the potential to play an important role in improving the resilience of both the insurance industry and society after a pandemic—an important step in closing the protection gap for people and nations most in need.

# **OIN Focus**

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## **Growing Earthquake Risk for Java**

Indonesia has experienced a number of large earthquakes during the last couple of centuries, including the devastating and costly 2004 M9.1–9.3 Sumatra-Andaman earthquake and tsunami. However, the worst may be yet to come, particularly for the densely populated and relatively prosperous island of Java, a hub of financial activity and popular tourist destination, where the risk of high losses from earthquakes and tsunamis is steadily growing.

## SURROUNDED BY SUBDUCTION ZONES

The thousands of islands that make up the Republic of Indonesia are surrounded by several tectonic plates. Their rapid convergence has created volcanically and seismically active subduction zone faults—more than 9,000 km (6,600 miles) in total—from western Indonesia eastward to the Philippines.

Because of the relatively sparse recorded earthquake history for Indonesia, the abundance of fault zones, and the high convergence rates in the region—notably in the Java Trench just off the south coast of Java—it is plausible that a highermagnitude earthquake than previously experienced in the region could occur. Factor in Indonesia's growing population, construction boom, and burgeoning economy—particularly on the island of Java—and the escalating potential for significant damage and high insured losses becomes evident.

### THE WORST YET TO COME?

Four factors suggest a seismically active future for Indonesia, particularly Java.

First, recent historical earthquake experience for Indonesia has been limited to low-exposure areas, including around the island of Sumatra or near islands in eastern Indonesia; both regions have a lower population density and exposure at risk than Java. Two cautionary earthquakes have impacted Java since the 2004 Sumatra-Andaman earthquake and tsunami—the 2006 M6.3 Yogyakarta crustal earthquake and 2009 in-slab M7.0 West Java earthquake—and both events have had a much larger impact than events of similar magnitude in other parts of the country.

Second, the very active Java Trench subduction zone has thus far exhibited quite low seismic activity. Does this indicate aseismic behaviour in the Java Trench or does it simply reflect a short earthquake record for the region? If the latter, the energy accumulating in the trench could eventually result in a devastating event.

Next, with the Java Trench subducting slab located just 50 to 250 km (30 to 155 miles) under the island of Java, in-slab earthquakes present a very real threat to modern and prosperous Jakarta, Indonesia's largest city and the nation's capital. Finally, several crustal faults have been determined to be active and potential sources for significant earthquakes, including faults located close to major cities on the island, such as Bandung, Semarang, and Yogyakarta.

### **HIGH EXPOSURE = HIGH RISK**

Java is home to 60% of Indonesia's total property replacement value. Insurance penetration is also relatively high on Java, thus a catastrophic event could result in a sizable insurance loss. To enhance understanding of the earthquake risk for Indonesia and the Southeast Asia region as a whole, AIR has released a comprehensive update and expansion of the AIR Earthquake Models for Southeast Asia, covering Indonesia, Hong Kong, Macau, the Philippines, Singapore, Taiwan, and Vietnam.



Earthquakes present a very real threat to modern and prosperous Jakarta, Indonesia's largest city and the nation's capital. (Source: Yohanes Budiyanto)

## Assessing Terrorism Risk 15 Years After 9/11

Fifteen years ago on September 11, terrorist attacks at the World Trade Center, the Pentagon, and in Shanksville, Pennsylvania, caused nearly 3,000 fatalities and generated approximately USD 44 billion (in today's dollars) of insured losses—the second largest loss in insurance history. Today, terrorism remains a highly dynamic threat capable of causing significant insurance losses.

### **CURRENT TERRORISM RISK**

In the past 15 years, terrorism risk has evolved with changes in the global geopolitical landscape. Terrorism risk is higher worldwide than it was 15 years ago, and higher even than it was five years ago. The majority of terrorist incidents are guite concentrated. In 2014, 57% of all attacks occurred in just five countries: Iraq, Pakistan, Afghanistan, Nigeria and Syria. However the rest of the world suffered a 54% increase in terrorist incidents in 2013. Recently there have been an increased number of coordinated attacks, such as in Paris last November, in Brussels in March, and most recently in Istanbul in June. There has also been an uptick in "lone wolf" attacks, such as in San Bernardino last December, in Orlando in June, and in Nice in July.

AIR's updated probabilistic Terrorism Model for the US reflects an increase in the frequency of terrorist attacks. Despite recent headlines, the probability of terrorist attack—at least the kind that causes significant damage to property is still quite low in the US as well as in Western Europe.

### **MODELLING TERRORISM**

Existing functionality within Touchstone® and a new feature introduced this year can help insurers identify areas of highest exposure concentration worldwide and estimate potential losses based on attack type. The Dynamic Ring Analysis within Touchstone can identify the true ring of maximum exposure for property (worldwide) or worker's compensation (US), pinpointing areas at highest risk from a single terrorism event.

Using Touchstone's geospatial capabilities, these exposure concentrations can be used alongside terrorism risk maps produced by AIR's sister company Verisk Maplecroft® to broaden understanding of terrorism risk. The maps take advantage of research by Maplecroft's team of security analysts to estimate terrorism risk scores at a subnational level.

In addition to a deep understanding of the exposure, Touchstone provides estimates of potential loss were an attack to occur. AIR's new international deterministic modelling capabilities allow users to simulate the deployment of a variety of conventional weapons at various locations within their portfolio to test "what-if" scenarios in 27 countries. The model uses urban density to calculate how explosions propagate through cities and rural areas.

Finally, with AIR's U.S. probabilistic terrorism model, users can assess how frequently terrorist events might occur, how large the losses could become and the range of events that their portfolios might be exposed to. The probabilistic model uses 500,000 years of potential simulated events representing different weapons at various targets distributed across the US.

With these sophisticated tools available in Touchstone, AIR is helping companies evaluate and manage terrorism risk so that they can better prepare for the financial consequences of today's uncertain world.



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