

GUARDING AGAINST NATURAL CATASTROPHE



Extreme weather events and natural disasters ranked as the top two risks in terms of both likelihood and impact in the World Economic Forum's The Global Risks Report, 2018¹ (The GRR).

These risks can manifest in a range of weather-related losses, such as flood, earthquake, hurricane or other natural calamities. The impact of these natural hazards upon economic well-being and human suffering has increased, and, as indicated in The GRR, is expected to continue to increase.

TYPICAL IMPACTS OF THESE TYPES OF EVENTS

- Significant property damage.
- Business interruption – local and global.
- Financial impact on the affected business, its customers and suppliers.
- Employee hardship.
- Reputation damage and market share.

Consulting Solutions' offers a broad range of catastrophe risk consulting services to help you better identify and quantify your natural hazard risks. We can help you determine the most appropriate strategies to prevent, reduce and cope with risks and any resulting business interruption, depending upon a business' industry, location, facilities and individual circumstances.

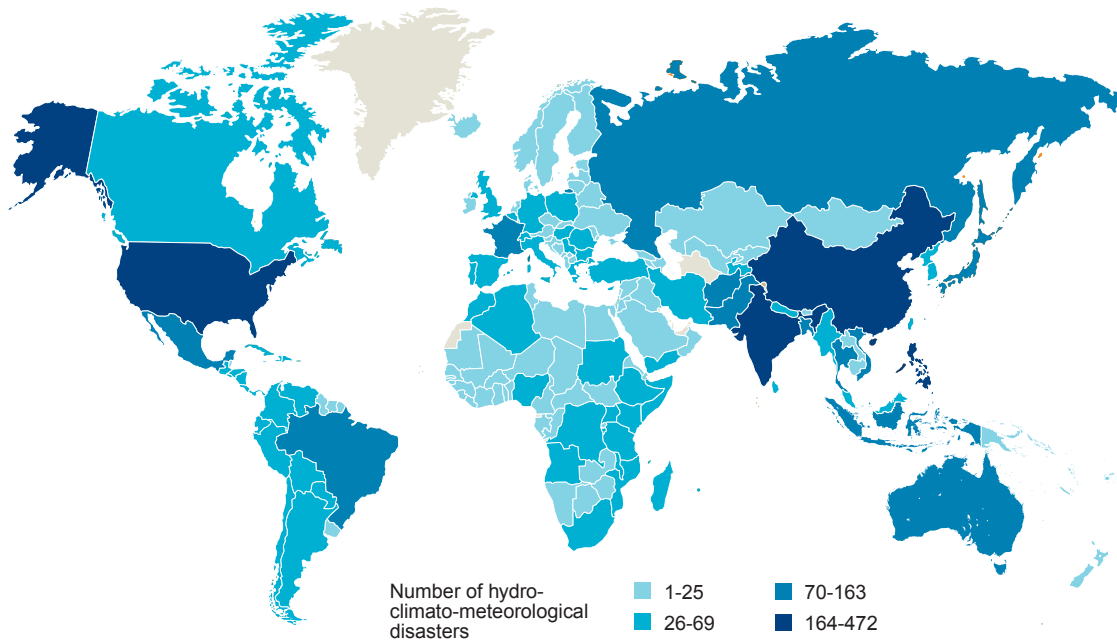
PREPARING FOR WEATHER EVENTS AND NATURAL DISASTERS

Preparing your business plays an important role in minimising the potential impacts of a natural disaster. A risk management strategy involves both:

- Risk reduction – investing in preventing or mitigating human and economic losses:
 - Reducing risk exposures (e.g. land-use planning).
 - Reducing vulnerability (e.g. retrofitting high-risk buildings, design of new buildings, improving site conditions and active and passive protections).
 - Better responses (e.g. crisis management and emergency response planning).
- Risk coping – transferring the remaining risk via insurance and other risk-financing.

¹World Economic Forum, The Global Risks Report 2018, 13th Edition, <http://wef.ch/risks2018>

Number of weather-related disasters reported per country (1995-2015)



UN office for disaster risk reduction (UNISDR) revealed that 20-year review (1995-2015) shows 90% of disasters are weather-related; United States (472), China (441), India (288), Philippines (274), and Indonesia, (163) record the most

KEY NATURAL HAZARD EXPOSURES AND IMPACTS

EARTHQUAKES



The level of destruction caused by an earthquake depends upon:

- The depth, size and direction of the fault line and the magnitude of energy it releases.
- Soil condition.
- Building construction quality.
- Impacts and Risk Reduction

Impacts and Risk Reduction

Considerable progress has been made in improving the earthquake resistance of building structures, but often little is done to secure and

protect buildings' contents, such as storage racks, electrical and water piping, flammable liquid/gas piping, and critical equipment.

Earthquake impacts to these components can result in fire or other damage and significantly interrupt a business. While eliminating damage entirely is impossible, a substantial reduction in damage can be achieved in a cost effective manner by simply restraining vulnerable items.

Impacts and Risk Coping

Numerous commercial and industrial zones and have been established in regions with major seismic exposures.

Many facilities in these areas either do not have earthquake insurance, or operate with marginal limits and very high deductibles. As a result, the potential impact due to an earthquake can cause significant damage to property and business continuity.

WINDSTORMS



Severe tropical storms (hurricanes, typhoons and cyclones) can cause widespread devastation.

During a windstorm, damage to buildings' structural frames aren't the main concern, as these are generally designed with good safety

parameters. However, a very small tear in buildings' envelopes, like an opening in a wall, can cause significant damage:

- Internal building pressure can result in roofs loosening.
- Wind and rain entering buildings can result in damage to interiors.

Keeping a building's envelope sealed is one of the most effective ways to prevent windstorm damage and is a simple matter of wind resistance. If the roof, walls and windows can withstand forces exerted by wind and wind-borne debris, the building will survive.

FLOOD



The impact of water damage to a property can be varied. Flash floods following heavy rains can strike almost without warning. Levels along rivers can rise slowly, or storm surges can wipe out large areas.

Floods cannot be prevented, but the potential risk and causes of flooding and their impact can be understood and an appropriate strategy can be put in place to address the risks and reduce the impact of a flood event and any resulting business interruption.

Consulting Solutions' can help by:

- Determining the potential source and types of flooding the area is exposed to.
- Determining expected flood depths.
- Determining a warning time for flooding.
- Determining the duration of flooding.
- Assessing property damage and business interruption risks and existing flood mitigation opportunities.



RESPONDING TO A NATURAL CALAMITY

How a business and its people respond after a disaster, is a critical part of managing a crisis and ensuring business continuity.

Making sure you have plans in place to keep your employees safe and enabling them to be nimble and know what to do during and after a disaster, are central to your business' and your peoples' ability to recover quickly – both personally and professionally.

CONSULTING SOLUTIONS' CASE STUDIES

Client 1

A leading fast-moving consumer goods group with global operations.

Scenario

In April 2014 a client's Chennai plant experienced wind gust reaching 75 kph. This damaged the building's roof. Consulting Solutions' was engaged to help the client re-engineer the roof to improve its reinforcement.

Consulting Solutions' Solution

Technical guidance and assistance to re-engineer the roof to improve its reinforcement.

Result

Consulting Solutions' work was put to test when a severe storm hit the property in early 2017. Our work was a success – the roof withstood the storm without any major damage.

Client 1

A PET film manufacturing client with an operational base in Thailand.

Scenario

The client's property was located in a flood zone according to existing maps of the area. As a result the company's insurer was charging large premiums for property cover.

Consulting Solutions' Solution

Consulting Solutions' conducted a detailed flood study to evaluate the flood exposure risks for the property and recommended measures to mitigate the risks.

Result

By putting in place the recommended measures the client was able to obtain a cheaper premium from same insurer.

HOW CONSULTING SOLUTIONS' CAN HELP

Consulting Solutions' offers a broad range of catastrophe risk consulting services to help you better identify and quantify your natural hazard risks and help you make more informed decisions about your mitigation and risk transfer requirements.

Consulting Solutions' assists companies to:

- Identify their exposures.
- Evaluate the potential impact of those exposures.
- Implement cost-effective mitigation strategies at the local site and at the corporate level.
- Develop catastrophe specific plans.

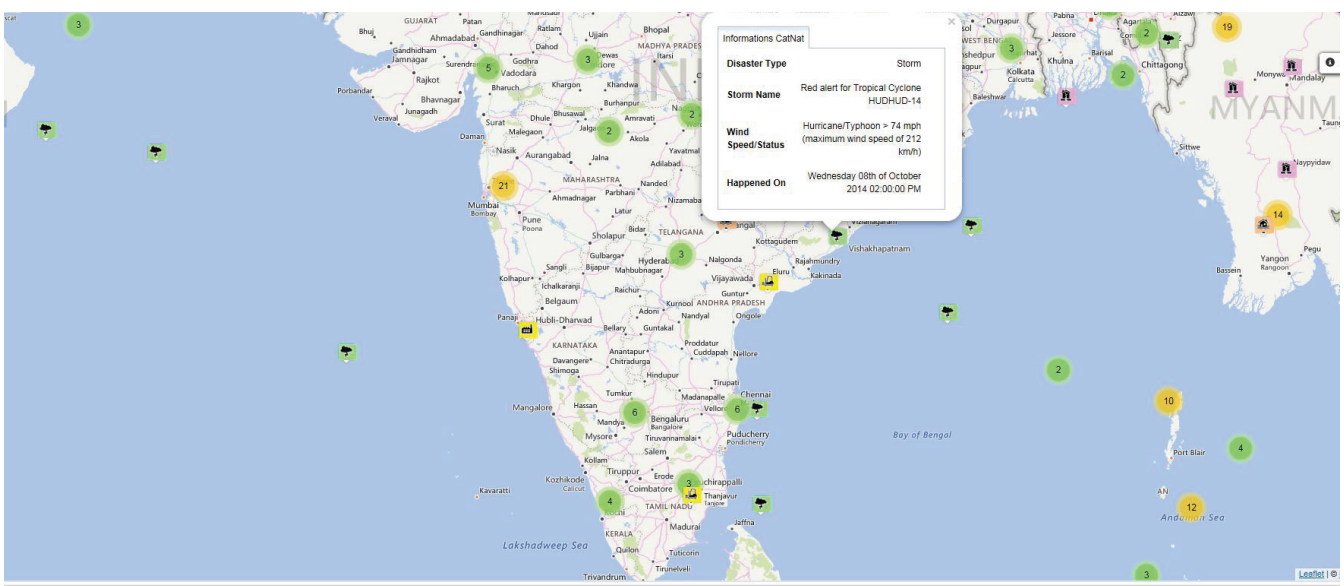
Each assessment identifies key, non-structural recommendations and any remedial action that can be taken to minimize potential property loss and subsequent impact upon ongoing operations.

Consulting Solutions' monitors and circulates warnings obtained from The National Hurricane Center and other sources to companies with locations exposed to hurricane, riverine flooding and heavy rains. This is done using an internally developed GeoLocation portal.

Consulting Solutions' specific natural catastrophe services include:

- Natural hazard analysis for a cluster of locations.
- Hazard reviews of assets within the natural catastrophe exposed locations.
- Natural hazard exposure report for specific sites.
- Natural hazard exposure assessment visits.
- Detailed quantification of the natural catastrophe hazards for a site, including quantification of the site's probable maximum loss.
- Natural Catastrophe Modelling – provides the probable loss exposures that may arise from natural catastrophe events.

MARSH – GEOLOCATION



EARTHQUAKE EXPOSURE EVALUATIONS



- Design and review earthquake protection for fire safety system.
- Evaluate flammable liquid and gas system against earthquake hazard and provide a solution.
- Evaluate site for content shake damage including proper anchorage of electrical panels and storage racks.

WIND EXPOSURE EVALUATIONS



- Detailed evaluation of roof system and wall cladding including doors and windows.
- Review of roof drainage design.
- Review of skylight fixing on the roof.
- Review of security of roof mounted equipment.
- Site visit to review the roof installation as per design and review of workmanship.

FLOOD EXPOSURE EVALUATIONS



- Generate flood maps (using Munich Re CatNet flood model).
- Develop detailed flood study.
- Recommend appropriate, cost-effective and practical risk improvement measures to help mitigate property, operational and life safety risks.
- Review flood emergency response plan.

KEY BENEFITS OF USING CONSULTING SOLUTIONS' SERVICES

Understanding your risks and knowing your options in terms of risk reduction and risk transfer provide peace of mind.

Consulting Solutions services:

- Promote awareness of the natural catastrophe risks to which companies are exposed on a global basis, and highlight companies' specific potential impacts.
- Assist companies in shaping their risk management strategies for dealing with natural catastrophes.
- Enable senior executives to make more informed decisions around their business continuity planning needs, particularly in natural catastrophe prone regions.
- Can reduce uncertainty – a detailed probable maximum loss assessment for a key facility can reduce uncertainty around the modelled losses by taking into account actual site specific vulnerabilities.
- Identify risk improvements you can make to help reduce losses or anticipated downtime from a natural hazard event.





THE MARSH DIFFERENCE

A global leader in insurance broking and innovative risk management solutions, Marsh offers the experience, knowledge, and insight required to identify and manage property exposures in the current risk environment. Marsh was one of the first companies to establish specialized industry practices for property risk consulting.

Marsh risk professionals are knowledgeable about the regulatory, technical, and business challenges of all major industries, and continually monitor research development, building codes, and local regulations to ensure that your organization's risk solutions reflect the current local codes and best practices. We can help establish your risk profile and recommend cost-effective strategies for mitigating property related risks.

For more information about Consulting Solutions, Marsh Advisory and other solutions from Marsh, visit india.marsh.com, or contact your local Consulting Solutions representative. You can also write to:

ConsultingSolutions.India@marsh.com

Contact : Kaustubh Kulkarni | M : +91 8879 212 217 | E : Kaustubh.Kulkarni@marsh.com

Disclaimer: Marsh India Insurance Brokers Pvt Ltd is a joint venture between Marsh International Holdings Inc. and its Indian partners. Marsh is a business of Marsh McLennan. This document is not intended to be taken as advice regarding any individual situation and should not be relied upon as such. The information contained herein is based on sources we believe reliable, but we make no representation or warranty as to its accuracy.

Marsh shall have no obligation to update this publication and shall have no liability to you or any other party arising out of this publication or any matter contained herein. Any modelling, analytics, or projections are subject to inherent uncertainty, and the Marsh Analysis could be materially affected if any underlying assumptions, conditions, information, or factors are inaccurate or incomplete or should change. Insurance is the subject matter of the solicitation. For more details on risk factors, terms and conditions please read the sales brochure carefully before concluding the sale.

Prohibition of Rebates – Section 41 of the Insurance Act, 1938; as amended from time to time: No person shall allow or offer to allow, either directly or indirectly, as an inducement to any person to take or renew or continue insurance in respect of any kind of risk relating to lives or property in India, any rebate of the whole or part of the commission payable or any rebate of the premium shown on the policy, nor shall any person taking out or renewing or continuing a policy accept any rebate, except such rebate as may be allowed in accordance with the published prospectuses or tables of the insurer. Any person making default in complying with the provisions of this section shall be punishable with a fine which may extend to ten lakh rupees.

Marsh India Insurance Brokers Pvt. Ltd. having corporate and the registered office at 1201-02, Tower 2, One World Center, Plot-841, Jupiter Textile Compound Mills, Senapati Bapat Marg, Elphinstone Road (W), Mumbai 400 013 is registered as a composite broker with Insurance and Regulatory Development Authority of India (IRDAI). Its license no. is 120 and is valid from 03/03/2021 to 02/03/2024. CIN: U66010MH2002PTC138276.

Copyright 2021 Marsh India Insurance Brokers Pvt Ltd. All rights reserved. Compliance IND 20180219-A.