

RESILIENCY: ADAPTING TO EXTREME WEATHER EVENTS AND A CHANGING CLIMATE

JULY 2014



CONTENTS

- 1 INTRODUCTION
- 3 BUSINESSES FEELING THE EFFECTS OF CHANGING CLIMATE
- 7 ORGANISATIONS LACK THE INFORMATION REQUIRED TO CALCULATE ROI
VALUE OF ADAPTATION ACTIONS
- 10 THOSE ORGANISATIONS FAILING TO INVEST NOW MAY HAVE TO PAY A
HIGHER PRICE IN FUTURE
- 12 CONCLUSION

■ INTRODUCTION

The extent and exact timing of changes in the climate might prove difficult to predict, but adapting to some of the short- and medium-term impacts has become increasingly important. One such issue is the frequency and severity of extreme weather events, some of which have had devastating effects on local populations, property, and infrastructure in our cities. Using its knowledge and information about environmental, natural catastrophe, and property risks in the UK, Marsh has this year undertaken a study into the potential impacts of extreme weather events and a changing climate on people and businesses operating in cities, including the types of investments being made to improve the resiliency of property and infrastructure in the face of these phenomena. The survey data presented within this report was collected from Marsh infrastructure and real estate clients, as well as Base London members.

For the first part of the survey, respondents were asked to describe their own roles in the businesses within which they work. Roughly two-thirds of respondents confirmed that they are directors in, or the managing directors (CEOs) of, their companies; 9% are advisors to business; and 4% have a role in sustainability (see FIGURE 1).

FIGURE 1 WHICH OF THE FOLLOWING BEST DESCRIBES YOUR JOB ROLE? PLEASE ANSWER ALL SUBSEQUENT QUESTIONS FROM THE PERSPECTIVE OF THIS RESPONSE.

Source: Marsh and Base London

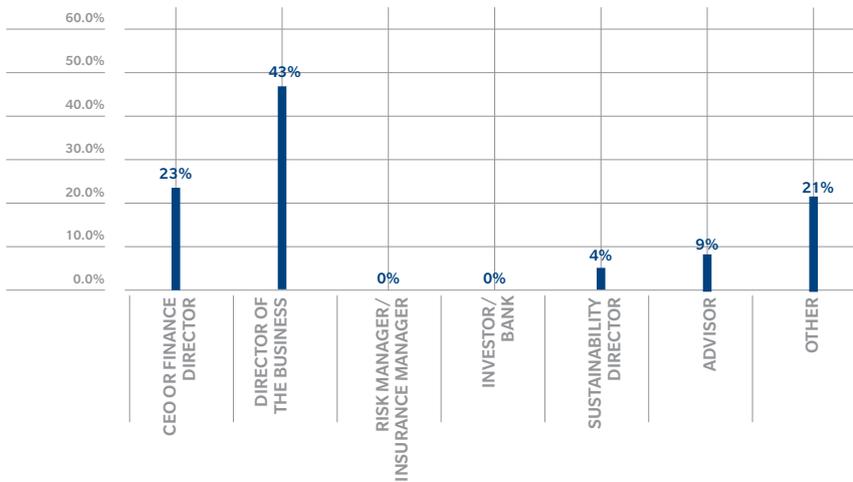
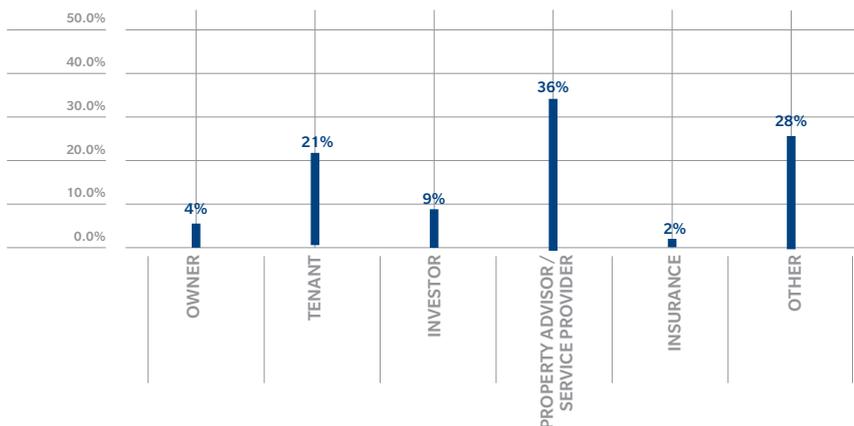


FIGURE 2 WHICH OF THE FOLLOWING BEST DESCRIBES THE MAIN RELATIONSHIP OF YOUR COMPANY TO PROPERTY IN THE CITY?

Source: Marsh and Base London

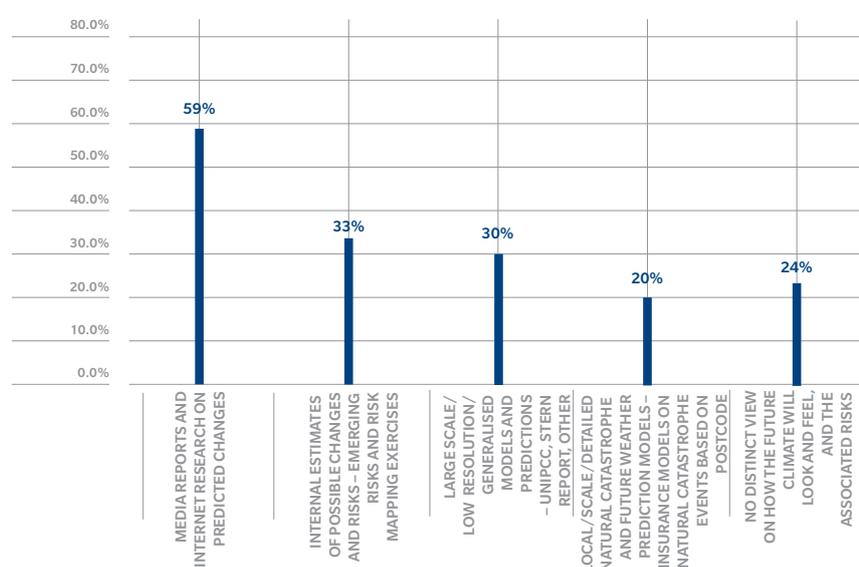


The survey also sought to obtain an understanding of the relationship between respondents' companies and property (see FIGURE 2). In asking about this, it was revealed that 13% of respondents are owners of, or investors in, property in the city, while around one-fifth are tenants. More than a third (36%) of those surveyed have an advisory role with regards to property or sustainability, while 2% are involved in insurance.

BUSINESSES FEELING THE EFFECTS OF CHANGING CLIMATE

FIGURE 3 WHAT TYPE OF INFORMATION DOES YOUR COMPANY UTILISE IN ORDER TO PREDICT THE FUTURE RISKS ASSOCIATED WITH EXTREME CLIMATE EVENTS? (RESPONDENTS WERE ASKED TO SELECT AS MANY ANSWERS AS WERE APPROPRIATE)

Source: Marsh and Base London



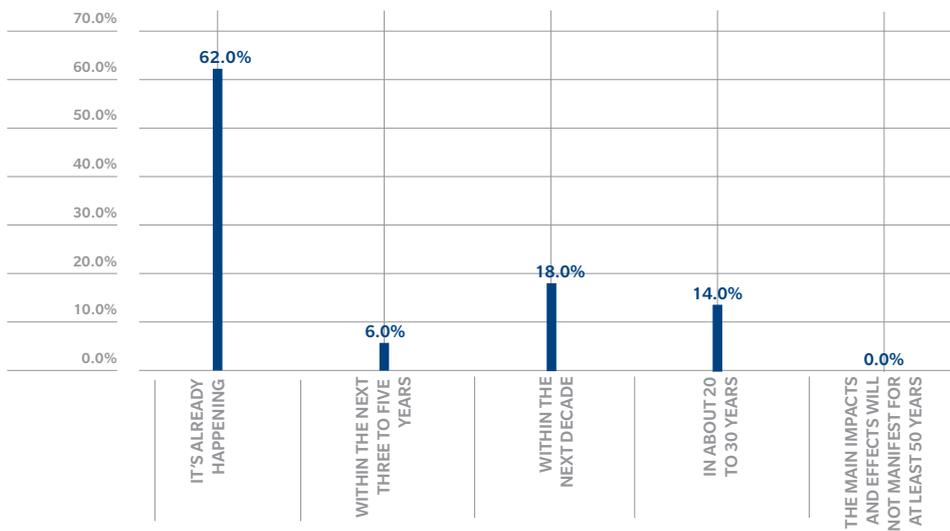
With the evidence for a change in the climate being increasingly reported in the media, the phenomenon and the associated risks have become front-page news in many countries over recent years. Our understanding of the risks that are emerging from unpredictable weather patterns and extreme weather events has improved, so we are offered greater access to information and model predictions on how the future might look. Reports from the UN Intergovernmental Panel on Climate Change (IPCC) and the UK Government’s Stern Review on the Economics of Climate Change, for example, show the possible scope and scale of the changes that are in store.

In terms of the types of information that companies use to predict the likely effects of a changing climate on their businesses, however, by far the greatest sources (used by 59% of respondents) are media reports and the internet (see FIGURE 3). This figure is well above the percentage of respondents who use generic, large scale/low resolution models (30%), such as those mentioned above, which report risks based on a regional- or country-level basis and predict longer-term changes in the climate. There are also those who use more detailed, local scale/high resolution models (20%)—which are based on natural catastrophe predictions for individual asset locations based on postal address—and internal risk mapping (33%), to predict the potential impact of future extreme weather events on their businesses.

With only a minority of companies using risk mapping and postal address-based systems to predict weather-related risks, it is not surprising that just under a quarter of respondents have “no distinct view on how the future climate will look and feel, and the associated risks”.

FIGURE 4 WHEN DO YOU THINK THE MAIN IMPACTS OF EXTREME CLIMATE EVENTS WILL START TO BE MATERIALLY FELT BY YOUR COMPANY?

Source: Marsh and Base London

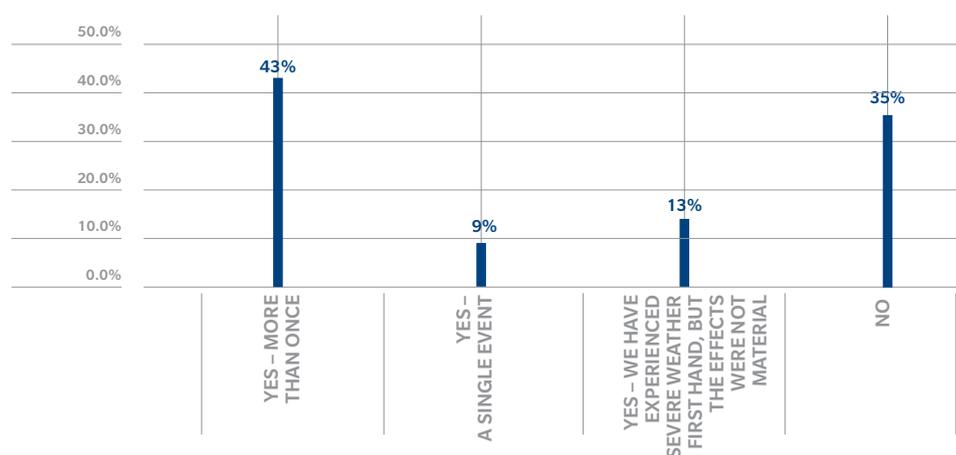


Debate still rages in scientific circles as to whether or not extreme weather events are actually increasing in frequency and severity. Nevertheless, nearly two-thirds (62%) of respondents believe that extreme weather events are having a material effect on their businesses right now (see FIGURE 4).

In total, 86% of respondents believe the effects of extreme weather events are already being felt, or will be materially felt, by their organisations at some point in the next decade. Overall, 100% of respondents express the view that the impact of these events will be upon us within the next 30 years at most.

FIGURE 5 | HAS YOUR BUSINESS BEEN MATERIALLY AFFECTED BY A SEVERE WEATHER EVENT IN THE PAST FIVE YEARS?

Source: Marsh and Base London



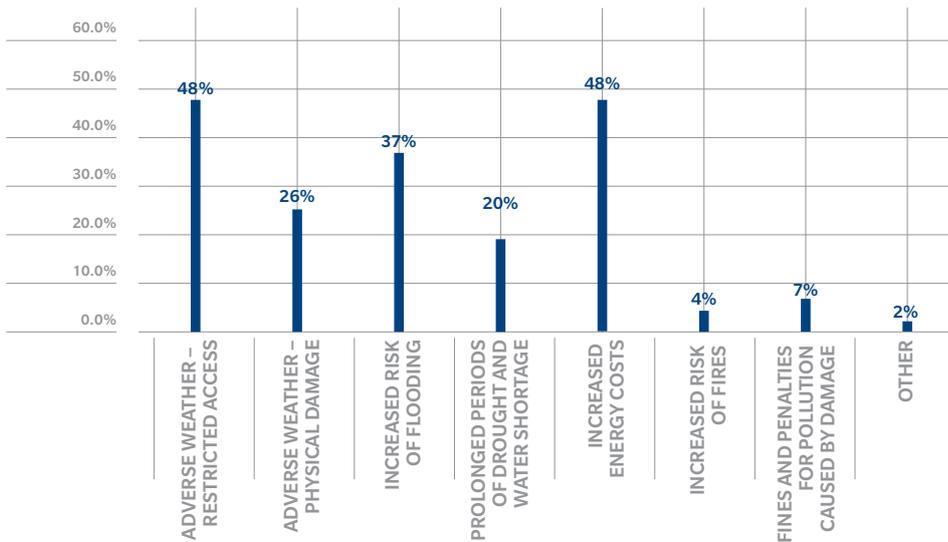
Of the 65% of respondents who indicated that the effects of extreme climate events have already materially affected business, 66% (43% of the total number) report having been affected on more than one occasion, while less than 14% (9% of the total number) have experienced a single event (see FIGURE 5).

Meanwhile, 13% of respondents state that although their business has not been affected directly by damage or interruption due to an extreme weather event within the past five years, it has been affected indirectly due to a breakdown in the supply chain or the critical infrastructure on which they rely. This type of indirect business interruption does not fit neatly into traditional property damage insurance policies, but is a critical risk factor for many businesses.

While 35% of respondents have not experienced a severe weather event which has had a material effect on their business first hand, there is little doubt that the localised effects of some severe weather events can play a large part in whether a business is affected or not. Understanding the potential for the local effects of extreme weather events on a business can be the key to understanding the response required, although many companies do not use local scale/high resolution (postal address-based systems) and detailed models to inform their decision-making on the key risks and potential effects (see FIGURE 3).

FIGURE 6 PLEASE IDENTIFY THE SINGLE MOST IMPORTANT RISK TO YOUR BUSINESS AND/OR YOUR PROPERTY ASSETS ASSOCIATED WITH THE CHANGING CLIMATE. (RESPONDENTS WERE ASKED TO SELECT AS MANY ANSWERS AS WERE APPROPRIATE)

Source: Marsh and Base London



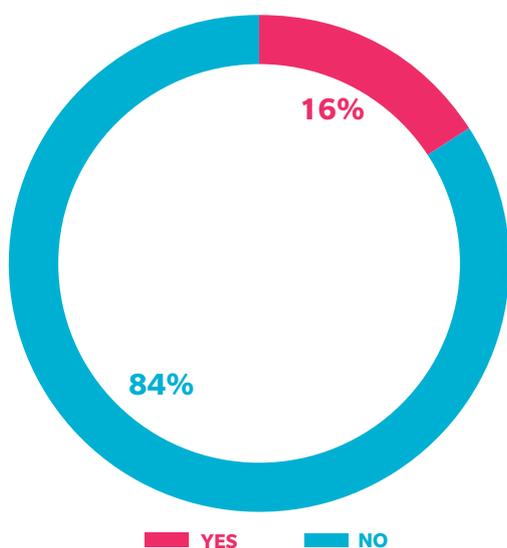
It is important for businesses to understand exactly what damage and interruption can be inflicted on their organisations as a result of the changing climate. Just under half (48%) of respondents to the resiliency survey state that one of the main risks of the changing climate and extremes of weather is the resultant restricted access, perhaps indicating the extent to which people and their behaviour is a major concern (see FIGURE 6). This would include staff being personally affected through an impact on travel and an inability to get into work, or direct effects on employees, as a result of damage to their property.

Physical damage to property and stock is evidently another major issue for business, with the risk of flooding alone a concern to 37% of respondents.

Increased energy costs are an issue for 48% of respondents, which is understandable considering the requirements to heat buildings during extreme cold weather and the need to cool buildings during heat waves.

ORGANISATIONS LACK THE INFORMATION REQUIRED TO CALCULATE THE RETURN ON INVESTMENT (ROI) VALUE OF ADAPTATION ACTIONS

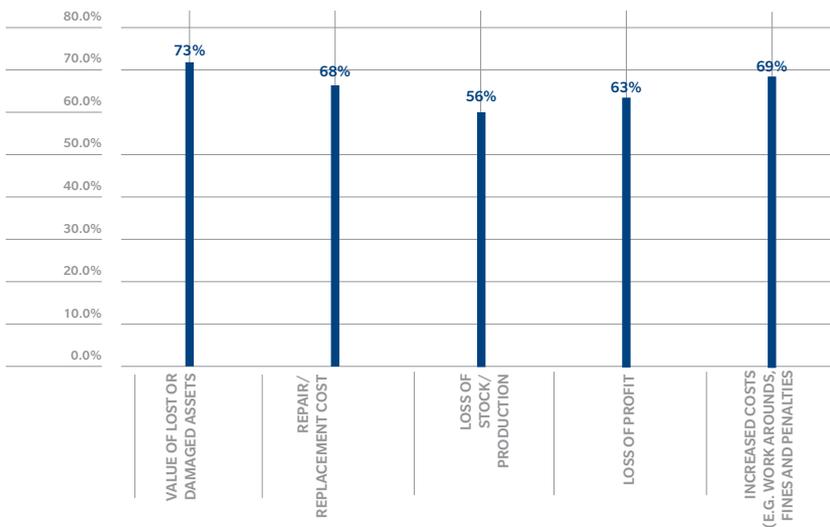
FIGURE 7 | DO YOU CURRENTLY RECORD THE IMPACT OF CLIMATE CHANGE ON YOUR BUSINESS?
Source: Marsh and Base London



Given that the findings of this survey reveal businesses with strong relationships with property in a city feel that the effects of extreme weather events are evident today, and that the material impacts are already being felt, it was concerning to find that just 16% of respondents' organisations have quantified the risk, or tried to measure the costs of the effects that climate change is having on their business (see FIGURE 7). Organisations must begin to quantify the effects of a changing climate on their business (through loss-scenario work, for example) so that the extent of exposures is known and can help support the introduction and investment in measures to make their companies more resilient and sustainable.

FIGURE 8 HOW DO YOU/WILL YOU MEASURE THE IMPACTS AND COSTS OF A CHANGING CLIMATE ON YOUR BUSINESS? (RESPONDENTS WERE ASKED TO SELECT AS MANY ANSWERS AS WERE APPROPRIATE)

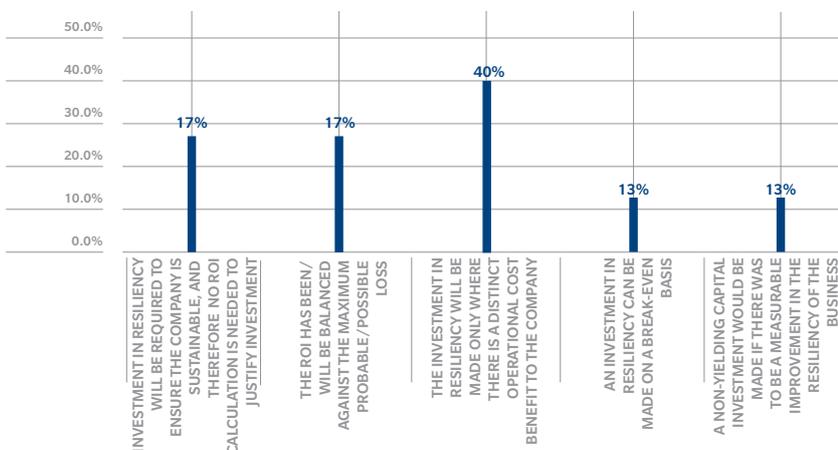
Source: Marsh and Base London



The most popular method to measure the impact of a changing climate on a business is by the value of lost or damaged assets (73%) (see FIGURE 8). The loss of stock or production comes in slightly lower, with 56%. Still, 84% of businesses reportedly do not record the effects of climate change on their operations at the present time.

FIGURE 9 WHAT LEVEL OF RETURN ON INVESTMENT (ROI) WILL BE REQUIRED TO JUSTIFY ANY MATERIAL CAPITAL EXPENDITURE ON ADAPTATION ACTIONS WITHIN YOUR COMPANY?

Source: Marsh and Base London



More than two-thirds (40%) of respondents to the resiliency survey state that their companies would take action to improve resiliency “only when there is a distinct return on investment (ROI)” (see [FIGURE 9](#)).

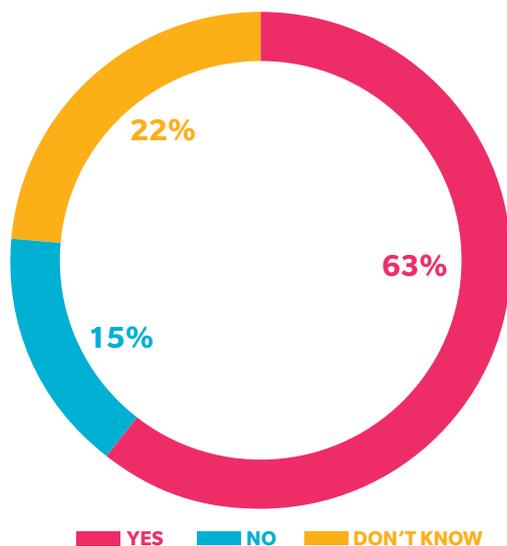
More than half (53%) of respondents’ companies would take action to improve their resiliency if they were able to break even or generate a positive return on the investment. While this is encouraging, it indicates that there will first need to be a material impact on these businesses before action will be taken.

Meanwhile, 34% of respondents state that the decision to invest in increased resiliency would be made against an estimate of the maximum probable loss, or to ensure that their company is able to continue operating. Just 13% suggest that an internal case could be made for a capital outlay on a non-yielding improvement in resiliency.

THOSE ORGANISATIONS FAILING TO INVEST NOW MAY HAVE TO PAY A HIGHER PRICE IN FUTURE

FIGURE 10 DO YOU EXPECT THAT ASSETS (PROPERTY AND INFRASTRUCTURE), WHICH ARE FOUND TO HAVE A LOW RESILIENCY TO SEVERE WEATHER EVENTS, WILL BE UNINSURABLE IN THE FUTURE?

Source: Marsh and Base London



Looking forward, 63% of respondents believe that assets—in the form of both property and infrastructure—which are seen as having a low resistance to severe weather events will become increasingly uninsurable in the future (see FIGURE 10). Just 15% believe otherwise, while the remainder are unsure. With a low proportion of respondents stating that they would be willing to make an investment in improving resiliency without an overt return on investment (see FIGURE 9), this would imply that such low-resistance assets will become increasingly uninsurable as the climate continues to change.

FIGURE 11 DOES YOUR PROPERTY INSURANCE INCLUDE A RESILIENT REPAIRS CLAUSE, ALLOWING REPAIR OR REBUILD AFTER LOSS TO BE UNDERTAKEN IN SUCH A WAY AS TO ENHANCE THE RESILIENCY TO FUTURE EVENTS?

Source: Marsh and Base London

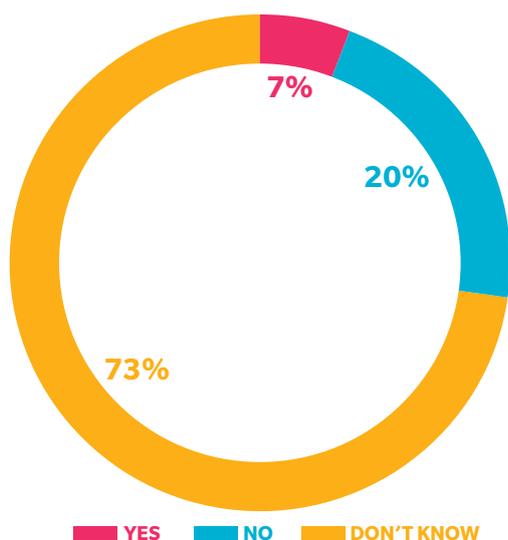
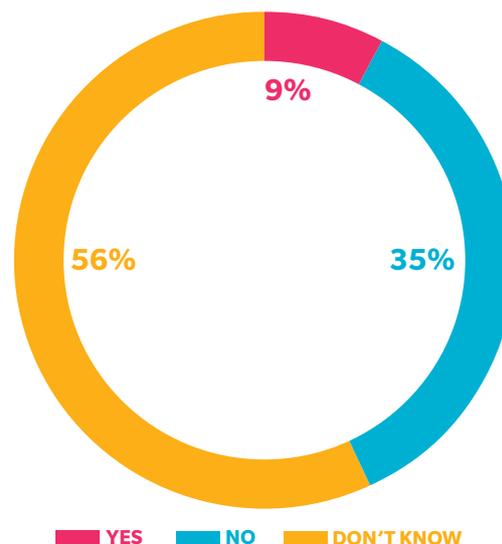


FIGURE 12 DOES YOUR PROPERTY POLICY INCLUDE A GREEN BUILDINGS CLAUSE OR EQUIVALENT, ALLOWING REINSTATEMENT IN AN ENVIRONMENTALLY FRIENDLY WAY?

Source: Marsh and Base London



With this in mind, it is particularly surprising to find that just 7% of respondents to the survey are aware of their organisation having a resilient repairs clause or equivalent in their property insurance policy, and that 9% can confirm the presence of a green buildings clause or equivalent (see FIGURE 11 and FIGURE 12). Overall, having a financial mechanism to improve the resiliency of property and infrastructure will be of benefit to both the insured party, in this case the owner, investor, or facility manager for the property or infrastructure at risk, and the insurer. Improving resiliency is a means to promote good risk management and to enhance sustainability.

The fact that the majority of respondents are unaware of whether or not this is the case offers up the potential that a greater percentage of companies actually have these clauses in place, yet the lack of awareness surrounding their inclusion suggests that more work needs to be done to communicate their potential benefits to business.

| CONCLUSION

Debate still rages in scientific circles as to whether or not extreme weather events are actually increasing in frequency and severity. Nevertheless, nearly two-thirds (62%) of respondents to the resiliency survey believe that the impacts of extreme weather events are having a material effect on their business right now, while 100% believe they will be felt within the next 30 years at most. Efforts towards risk quantification and/or mitigation of climate change appear to be confined to a small number of businesses; the fact that just 16% of respondents' organisations record the impact of climate change is a worrying one.

More than half of respondents say their businesses would take action to improve the resiliency of the company if able to break even or generate a positive return on investment. While encouraging, this indicates a reactive as opposed to proactive stance which may end up costing these organisations greater sums of money in the future as the climate continues to change. The fact that nearly two-thirds of respondents believe assets with low resistance to severe weather events will become increasingly uninsurable in the future appears to confirm they are aware of this, and only serves to make their inaction all the more perplexing.

■ ABOUT THIS REPORT

This report was prepared by Marsh's Europe, Middle East, and Africa Environmental Practice, which recognises the need to find the right risk management solution for your environmental risks, and has a team of environmental specialists dedicated to advising clients on environmental risk management.

We can assist you in defining the key environmental risks, through to insurance advice, including proposing options for integrating specialist cover with existing insurance programmes, such as the general liability and property insurances.

Marsh's combination of strategic environmental consultancy and insurance brokerage services will guide you through the statutory and operational environmental risks that can affect your business performance.

Marsh is a supporter of Base London, which organises city-focused events that address and accelerate the potential of green and smart city initiatives to drive economic growth and development.

■ ABOUT MARSH

Marsh is a global leader in insurance broking and risk management. We help clients succeed by defining, designing, and delivering innovative industry-specific solutions that help them effectively manage risk. We have approximately 27,000 colleagues working together to serve clients in more than 100 countries. Marsh is a wholly owned subsidiary of Marsh & McLennan Companies (NYSE: MMC), a global team of professional services companies offering clients advice and solutions in the areas of risk, strategy, and human capital. With more than 54,000 employees worldwide and approximately \$12 billion in annual revenue, Marsh & McLennan Companies is also the parent company of Guy Carpenter, a global leader in providing risk and reinsurance intermediary services; Mercer, a global leader in talent, health, retirement, and investment consulting; and Oliver Wyman, a global leader in management consulting. Follow Marsh on Twitter [@MarshGlobal](#).



For more information, please contact:

DR CLIFF WARMAN

Environmental Practice Leader, Europe, Middle East and Africa
Marsh Ltd
+44 (0)20 7357 2200
cliff.warman@marsh.com

MARSH IS ONE OF THE MARSH & McLENNAN COMPANIES, TOGETHER WITH
GUY CARPENTER, MERCER, AND OLIVER WYMAN.

The information contained herein is based on sources we believe reliable and should be understood to be general risk management and insurance information only. The information is not intended to be taken as advice with respect to any individual situation and cannot be relied upon as such.

In the United Kingdom, Marsh Ltd is authorised and regulated by the Financial Conduct Authority.

Copyright © 2014 Marsh Ltd. All rights reserved.

GRAPHICS NO. 14-0688