

Managing climate risks

Many organisations still do not consider the changing climate to be a serious risk to their operations, their suppliers and their customers. But climate risks are real and in some cases significant, presenting a threat to profitability and continuity.

The risk management process does not have to be difficult or disruptive. Most companies will already have generic risk processes in place. However, this paper draws attention to some specific issues that arise when considering climate risks.

For those organisations that do manage their climate risks effectively, and bear in mind these characteristics, there will be both immediate and longer-term benefits.



The weather can affect operational performance in many different ways. A recent global survey¹ by the Business Continuity Institute indicated that, during 2009, adverse weather was the third highest cause of business disruption, after swine flu and information and communication technology (ICT) disruption.

Some organisations are poorly prepared to deal with weather risks now. They certainly won't be prepared for more severe or different risks in future.

Continuity planning may help them respond to the consequences of adverse weather, but this often assumes that past experience is a reliable indication of potential future weather risks. With growing evidence of how the climate has already changed, and larger changes anticipated in future, such assumptions will only provide a false sense of security.

¹ 'The Business Case for BCM', Summary report of the global survey of BCM practitioners, published in March 2010 by the Business Continuity Institute, available from www.thebci.org. 94% of responding organisations experienced some level of disruption over the past 12 months. The top five events by levels experienced were: 1) Swine flu 2) IT and/or telecom disruption 3) Adverse weather 4) Lack of energy supply 5) Computer virus/cyber attack.

Why is climate risk management important?

Many organisations are simply unaware of the extent to which they rely on benign weather conditions, and how a changing climate could affect them². This is worrying, given the growing emphasis on managing risks generally, ensuring operational continuity. Yet, you don't have to look far for obvious examples of how adverse weather can affect the everyday functioning of organisations – such as the simple issue of getting people to work during snow, extreme rainfall or heatwaves.

Climate projections show that the kinds of weather that cause us problems in the UK now are generally set to increase in frequency and severity - as summers become hotter and drier, and winters milder and wetter. Not only can we expect more flooding as a result of more intense rainfall, but also more heatwaves and more droughts.

The direct climate impacts on our infrastructure, assets, people and communities are relatively obvious. Less obvious are climate risks arising through the interdependencies of our organisations, infrastructure systems and economy.

We operate in a globally connected marketplace and overseas suppliers may experience more severe climate change than here in the UK. It is important to understand the vulnerabilities of international sites, assembly plants and warehouses, including the infrastructure and resources they depend upon.

Are these secure in the face of climate change over the next 20 or 50 years? Are your 'just-in-time' logistics resilient if major shipping or land routes are disrupted more frequently?

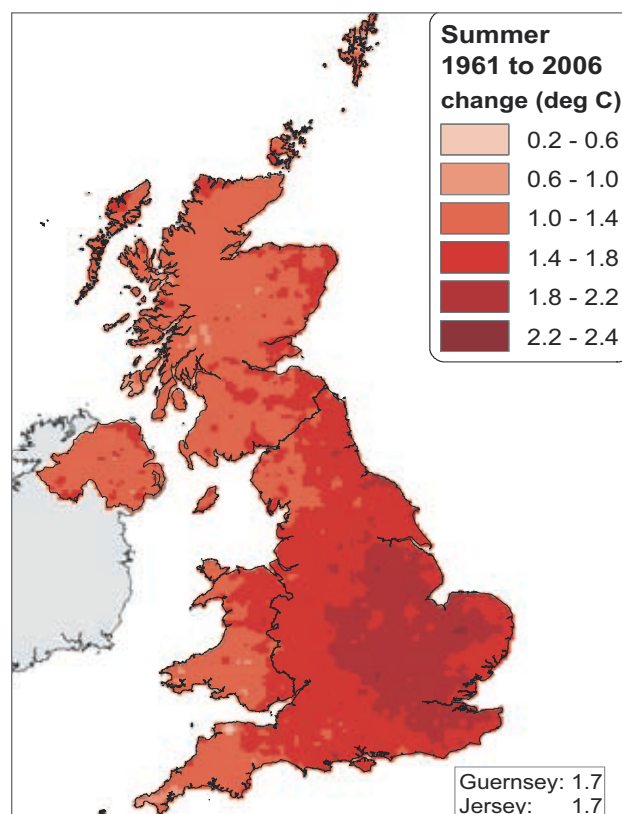
Closer to home, how vulnerable is your workforce and the systems they rely on to do their jobs? Have you considered how your customers' behaviour and needs may change in response to climate drivers? Does the changing climate feature in your strategic planning and horizon scanning? These issues are worth considering now because, while research has indicated that negative consequences from climate impacts are generally expected to outweigh potential benefits, there are likely to be business opportunities too.

There is a growing trend for voluntary, and increasingly mandatory, disclosure of climate risk. Companies responding to the Carbon Disclosure Project have answered questions about climate risk.

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Local authorities report against an indicator of preparedness for climate change. Now, Government, investors and insurers are putting pressure on more businesses to understand and address climate risks. For example, under the UK Climate Change Act, the Government has directed organisations that deliver statutory functions to report on climate risk, and the US Securities and Exchange Commission has recently recommended that companies disclose physical risks from climate change.

This process can also identify new commercial opportunities and cost savings; and demonstrably managing climate-related risk will reassure investors, insurers and regulators.



© UK Climate Projections 2009.

² There are exceptions to this, with some organisations much more 'climate aware' – mainly those that are directly dependent on environmental resources to fulfil their primary functions (eg water companies, energy companies and some in the agriculture sector).

Three steps towards climate resilience

If you are in business, then you are used to managing risk. You are used to dealing with uncertainty and taking decisions on the basis of incomplete information. These are also the skills you need to manage climate risk. Some typical steps in a risk management cycle are also appropriate for climate risk (see figure below).

1. Understand your risks

To make your organisation more resilient, you need to understand the potential climate risks you may face. You need to know how likely they are to occur. And you need to understand what the impact would be if they do.

Start with a high-level screening exercise. This can raise awareness within the organisation and help you identify which aspects of your business, your assets, your people, your suppliers and your markets could be vulnerable to a changing climate. You will rapidly see where to follow up with a more detailed assessment.

You will need to gather some evidence about climate change to help you understand and assess the risks.

This might include, for example, getting a better handle on potential climate changes in the countries that are important to your supply chain.

2. Develop your responses

Understanding your risks leads naturally to the next step, which is to develop your responses. Often, these are fairly small measures that can have ancillary benefits such as cutting costs, boosting efficiency or improving the performance of your supply chain through revised procurement procedures.

Just as in any other area of risk management, responses include transferring risks (eg through insurance or partnership work), avoiding risks and reducing risks (by adapting processes and operations). Of course, simply accepting the risk – the ‘do nothing’ response – can be valid too, but only if supported by evidence.

The appropriate response depends on your organisation’s risk appetite, as well as on practical concerns such as resources and cost (which determine your risk-bearing capacity). Ultimately, climate risks should be considered alongside other risks when project, policy and strategic decisions are made.

Principles for climate risk management

View as long-term driver of business change

Look for opportunities as well as threats

Be compatible with existing systems

Use climate science appropriately

Combine breadth and depth in analysis

Work closely with colleagues





3. Implement and review

The final step is to implement these responses, proportionately, given the context of wider business risk. Measures may be introduced incrementally or as a step change to an organisation's functions, depending upon the nature of the individual climate risks and management approaches.

Whatever you do, dealing with climate risk will be an ongoing process and it is important to reassess the risks and your response to them on a regular basis. Ideally, climate risk should be included in existing mechanisms for strategic planning and monitoring business risks.

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Drinks manufacturing

For a drinks manufacturer, climate impacts on its water supplies was a priority. Increasingly scarce water resources would affect the availability of water for cooling and production processes, causing more frequent delays, reducing output capacity and increasing costs. By assessing the magnitude and likelihood of risks, a series of adaptive actions was developed to reduce the problems.

This company also needed to assess which of its sites would face increased flood risk in the future, so that today's investment decisions would remain productive throughout their 80-year life. It also considered the impact of climate change on its products and packaging. High temperatures, storms and humidity could affect shipping to global markets. This risk and its magnitude came as a surprise, but simple steps were identified to reduce the risk at minimal cost.

The principles of climate risk management

However, there is more to climate risk management because it is long term and it is dynamic.

Managing climate risk is a **long-term** challenge. It will stretch our comfort zones; it could raise bigger, longer-term, strategic questions that we don't often consider. Business requires decisions over a range of different timeframes and climate risks will need to be managed in different ways at different times.

Managing climate risk is also **dynamic**. It is not a one-off; the process may need to adapt and change. Our understanding of the potential risks and solutions will evolve as information about the changing climate and our own vulnerability improves and as our experience of dealing with it increases. We'll need to monitor the nature of the problem and the effectiveness of our response, and be flexible enough to learn as we go, so that we start to plan in a way that stops risks developing.

To address these challenges, AEA recommends six underpinning principles for effective climate risk management.

Firstly, it is important to **view the changing climate as a long-term driver of business change**. There are no quick fixes when it comes to dealing with climate change – it is going to be one of the long-term drivers of your organisation. Climate change needs to be considered alongside other factors, such as economic and market trends, that influence your strategic planning, and it may force you to look longer term than you are used to.



Telecommunications and ICT

Recent flooding at a BT exchange in west London affected broadband and telephone services across the UK for several hours. The consequences of climate-related impacts in the ICT sector include environmental degradation of infrastructure, changes to the availability or reliability of ICT services, changes to operational business costs, changes to working environments, and associated health and safety concerns.

The increasing dependence of other infrastructure sectors, business and the wider economy upon ICT services is expected to magnify the impact of even localised climate-related disruption.

UK organisations rely upon a complex set of systems, networks and data centres. There are already growing concerns about rising temperatures and the costs of maintaining environmental conditions for ICT. Trends towards remote housing of data and applications make businesses ever more dependent upon the network links serving them.

Secondly, you should **look for opportunities for business growth, as well as threats from climate change**. While the changing climate will undoubtedly bring risks that need to be managed appropriately, there are likely to be multiple direct and indirect opportunities that forward-thinking organisations will tap into. These may be straightforward cost savings resulting from reduced winter maintenance, opportunities to introduce innovative products or services to capitalise upon changing markets and customer behaviour or ancillary benefits accruing from the measures you introduce in response to perceived climate risk.

Next, **ensure that climate risk assessments are compatible with existing systems and strategies**. Climate risks should be considered appropriately in the context of the other risks you face. Sometimes, because climate risks are difficult to quantify, they can be undervalued. So it's important to frame risks in a way that makes sense to your organisation, using the language and systems that you already have in place for corporate risk management.

Many local authorities, for example, have comprehensive risk management processes in place and they can use the same methods to assess

climate risks as they do other corporate risks. Generally, organisations that deal well with other risk issues are well prepared to deal with climate risks.

Use climate science appropriately; be aware of its potential and limitations. Climate models can help to understand the larger scale changes that may occur under a range of different future scenarios and illustrate the possible consequences at regional and, to some extent, local levels. However, they do not provide straightforward predictions and can only indicate the likelihood of outcomes to a limited extent. When it comes to making business decisions about climate risks, other factors, such as your experience of weather events in the past, your organisation's attitude to risk and the context of the other challenges you face, may be just as important as climate projections. You should not delay your response to climate risk until more detailed scientific data are available; this is unlikely to provide the clarity you think you need.

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Combine breadth and depth in assessments, supporting high-level strategic overview with detailed analysis in priority areas. Climate risk is not a 'single issue'; it has the potential to touch upon all areas of your organisation. You should consider the full range of possibilities and then focus resource on the areas that are most important. These will be different for every business and sector – for some, such as the food industry, it could be access to water; for others, it could be access to energy or the security of supply chains. Your response to climate risks needs to be proportionate and cost-effective, and balanced with the other risk and security concerns on your agenda.

Finally, **work closely with colleagues and stakeholders at all levels.** Decisions about adaptation responses will need to be discussed



with internal and external stakeholders, including operational staff, risk managers and the Board. The approach to the problem must be thoroughly embedded throughout the organisation, rather than the responsibility of one person or department. Climate risk management must be treated as a mainstream issue with the potential to affect everyone's job.

Local authorities

Under their performance framework, local authorities are required to prepare for climate risks to the services they deliver and the communities they serve. For a county council in the South East of England, a corporate climate risk assessment identified major service risks connected to ICT because of the role it plays in supporting the whole organisation. Property and highways were a concern because of the long-lived nature of the assets. There were also important risks to adult care services and environmental management.

Even at the level of services with annual planning horizons, short-term decisions may be nested within longer-term strategic frameworks and choices. Community leadership and commitment from council leaders will be crucial because of the long time horizons and uncertainties associated with planning for climate change.

What if...?

Recent science suggests that climate change is occurring more rapidly than previously thought. Temperatures are around 1°C above pre-industrial levels. What would happen if global average temperature were to reach 4°C above pre-industrial levels over the next 50 years?

International negotiations that aim to avoid dangerous climate change have focused on preventing global warming to no more than 2°C.

But some of the latest projections considering the rate at which greenhouse gas emissions may continue to rise have shown that, under the highest scenarios, 4°C warming – a 4 degree world – is possible by the 2070s or even the 2060s.

So, what would a 4 degree world look like? More importantly, how might you have to rethink your climate risk management strategies to survive?

International risks will be magnified

In many parts of the world, the changing climate is already exacerbating the challenges of day-to-day survival in relation to food or water security and the response to natural hazards such as flood and drought. In a 4 degree world, these issues would be many times worse, contributing to regional instability

Pharmaceutical companies

A pharmaceutical manufacturer's major concerns were storms and floods; its factories around the world have been disrupted by interruptions to electricity and water supplies caused by damage to power cables, pipes, pumping equipment and power stations. These problems are set to get worse with climate change, potentially stopping production and costing hundreds of thousands of dollars each year. However, it has now mapped the risks and the degree of risk, and is working on a strategic plan to manage them.

in a way that could affect operations, supply chains or customers of global organisations. Some parts of the world may simply become unviable without the creation of artificial environments.

In the domain of political risk, climate change may put pressure on the ability of governments to cope with current and new forms of resource scarcity, whereby, for example, unprecedented drought could lead to higher prices, greater competition between industry and consumers for water, and an increase in corruption as a result. Under this scenario, there



is the potential for organisations to face damage to their reputation if they are perceived to compete with vulnerable local populations for scarce resources such as water, agricultural land and even energy. There is also the possibility that host governments will increasingly require foreign investors to commit funding to adaptation projects in country.

In relation to global security, the interplay between various direct and indirect impacts of climate change could exacerbate a number of existing risks. Climate-related drought, flood, or crop disease can contribute to famine and health issues that, in turn, increase the likelihood of workforce disruption, theft or injury. Wider consequences may be social disruption or migration, contributing to political instability. At the level of individual sites, similar pressures could increase utility and asset insecurity, including through physical damage to infrastructure.

Global businesses reliant on operations located in particularly vulnerable regions of the world may already be challenged by water and energy security issues; they may need to cope with much higher levels of political and security risk in a 4 degree world.

Transformative responses will be needed

Leaving aside the potential political and security dimensions, a 4 degree world would present new challenges to many of the normal economic functions on which we depend. There might be changes in consumer behaviour and the availability of natural resources, and extreme weather disruption to business continuity - particularly where functions have an international dependence.



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This possibility creates entirely new issues to consider. The debate around climate risk management has, to date, been largely expressed in terms of inconvenience. Adaptation has been seen as mopping up the residual risks that remain after measures to cut emissions have been implemented. If international efforts to reduce greenhouse gases are delayed or unsuccessful, adaptation effort will be needed to address those larger consequences of climate change that were previously considered avoidable and even unmanageable.

While ‘mainstreaming’ climate risk **is** prudent in response to moderate levels of climate change, more **transformative** action could ultimately be required by your organisation in a 4 degree world. These could include introducing brand new technologies, or abandoning particular practices or rethinking strategic business directions, as the costs of managing climate risk increase dramatically. You may need to hedge your options against the possibility of different climate futures. You may even have to entirely reconsider the organisation’s *raison d’etre*.

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Sound climate risk management may need brave thinking. Leaders know that those organisations that are prepared to change are the ones that continue to succeed.

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Dealing with uncertainty

Of course, there is no certain prospect of encountering a 4 degree world. But there is also no certainty that global warming can be limited to 2°C. What is clear is that the future climate will be different. So, how is it possible to make sensible long-term decisions to manage climate risk appropriately given such uncertainty?

Allowing yourself to contemplate a ‘what if?’ scenario is a start in identifying those classes of decision and strategy that might require further attention. Taking a longer-term view will make you much less likely to commit your organisation to a path that leads to a dead end.

Some organisations have started to deal with uncertainty by identifying a number of options appropriate under different climate change scenarios. For example, a business with critical plant located in a major estuary may have a range of adaptations to address rising sea level that could, in the extreme, mean abandoning the location altogether. Once such options are known, it may be possible to map out flexible pathways for the future, identifying key decision points, so that you are prepared for a range of eventualities. One important point is that greater uncertainty usually means longer lead times are required for decision-making and planning.

Sound climate risk management may need brave thinking. Leaders know that those organisations that are prepared to change are the ones that continue to succeed. Early movers will manage their risks and seize new opportunities, while the slow to respond may disappear.





Lessons learned in climate risk management

Through experience of helping organisations across sectors to assess and respond to climate risks, AEA has several observations about successful approaches:

- + Raising internal awareness of climate change is key; time and time again, workshops and interviews have successfully helped transfer and collect vital information.
- + High-level messages about priority risks and opportunities can be used to secure the Board's buy-in for more detailed assessment and action.
- + Capital plans and investment strategies can be adjusted to make the long-term consideration of future climate change explicit (this reassures lenders and attracts investment).
- + Many ongoing initiatives help to mitigate climate risk (eg water efficiency strategies, flood risk assessments, business continuity plans). These are often easily modified to accommodate climate risks.

- + Support for climate risk management is more easily secured if the additional benefits of adaptation responses are highlighted (eg enhancing general resilience, improving efficiency or cutting costs within the organisation).

Transport companies

A major transport company was well aware of the risks posed by flooding to its infrastructure and schedules. But it didn't understand the possible implications of higher temperatures on its assets, people and ICT, because it hadn't faced these challenges before. Risk screening identified new concerns for the physical integrity of structures and materials during more severe and frequent heatwaves, for the health and safety of employees operating in harsh external and internal environments, and for the potential increasing cost of maintaining environmental conditions for ICT systems.



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