

CLIMATE CHANGE



The impact on health and safety in the workplace

Introduction

Climate change is no longer a distant environmental concern, it is a present and growing challenge that affects every aspect of our lives, including the workplace. Rising temperatures, extreme weather events, and shifting environmental conditions are reshaping the way we work and the risks we face on the job. From heat stress and air quality issues to disruptions in infrastructure and supply chains, the impacts of climate change pose significant threats to the health, safety, and wellbeing of workers across all industries.

This document explores the intersection of climate change and occupational health and safety, highlighting the emerging risks, vulnerable sectors, and the questions organisations need to ask in order to protect their workforce. By understanding these evolving challenges, employers, policy makers, and practitioners can better prepare for a resilient and sustainable future of work.

Premise of This Discussion

While preparing a response for a client on the recent International Standards Organisation changes (see following), focusing on climate change and its impact on health, safety and wellbeing, it quickly became apparent, and concerningly so, that most businesses were not even preparing for the impacts of climate change, let alone assessing their risk exposure against a set of quantifiable metrics. “... found 66% of respondents agreed now was the time to act on climate change but only 22% said it was a priority for their business.” [Climate action in Aotearoa New Zealand SMEs – current trends, drivers and barriers, April 2024].

An additional concern was the absence of practical guidance from government agencies, industry organisations, accreditation bodies, specialist associations, and businesses that claim to “*lead in sustainability*”. The advice provided was overly general and lacked specificity, making it difficult for any business to build a strategic plan that could inspire investor confidence.

In the civil industries that were addressing climate change impacts, the focus tended to cluster around financial markets, insurance companies, and healthcare providers. However, none of these sectors appeared to be conducting dedicated research into the intersection of climate change and health and safety. Their primary concern was typically the financial implications of climate change on their respective markets and the measures needed to mitigate financial risk.

The consideration of climate change on health and safety operational controls is important and creates complex scenarios to be considered for the risk management equation. The following information notates the considerations made in relation to climate change, plus several discussion points that would need to be included in any risk assessment, and how a risk management approach might be used to form as low as reasonably practicable (**ALARP**) decisions.

International Standards Organisation

Recent changes to the International Standards Organisation (ISO), standard ISO 45001:2018; Occupational health and safety management systems, added to the sub clause 4.1: *“the organisation shall determine whether climate change is a relevant issue.”* That is, consider climate change impacts on the business' health and safety functions. ISO also added to sub clause 4.2: *“NOTE: Relevant interested parties can have requirements to climate change.”* That is, businesses should consider if customers, vendors, regulators, agencies, and employees, etc, (stakeholders) have expectations or requirements in relation to climate change. These changes are the catalyst for this discussion. Even though the ISO changes are directed at accredited organisations, climate change affects all businesses.

(The ISO change also applies to ISO 9001:2016; Quality management systems.) It is important to note that “Climate Change” as a criterion for the ISO is new. As of publication, no practical guidelines have been published from standard setting bodies.

General Themes Considered

Policy and Preparedness

Health and safety policies and procedures must adapt to the changing climate conditions. This includes consistently reviewing and improving emergency response plans, improving infrastructure resilience, and ensuring that access to health care is maintained to cope with the increased burden of climate related issues.

"Ensure climate change considerations are at the forefront when reviewing any actions to address occupational risks opportunities, particularly when reviewing and assessing hazards and associated occupational risks." [Ravindiran Gurusamy, IRCA Principal Auditor, 12 Nov 2024]

Health Risks

Climate Change exacerbates health issues such as heat related illnesses, for example, respiratory problems that are worsened due to decreased air quality, and the spread of vector borne diseases. Another example of this could be where a protracted extreme heat wave can lead to heat strokes and cardiovascular problems.

Workplace Safety

People primarily working outdoors are going to be exposed to more hazards due to increased risks from extreme weather conditions. For example, heat wave periods also can lead to heat stress and dehydration. Additionally, there is the potential for climate change to introduce new hazards, such as:

- Increased exposure to harmful substances released during extreme weather events, or
- Dangerous driving conditions due to flooding.

People working in manufacturing, processing, and conversion, where work typically takes place in large open factories with limited climate controls, will also be at high risk from extreme weather

events. Examples will be similar to outdoors workers however the nuance may be increased with the plant and equipment being used, (hotter / colder surfaces, not functioning correctly due to operating outside their design parameters), to the timing of shifts, (adjustment for daytime temperatures and humidity.)

Infrastructure and Supply Chains

Climate change related events like floods, tornados and wildfire can damage healthcare infrastructure and disrupt supply chains, thereby making it difficult to provide essential services and medications. This could lead to shortages and increased risks of preventable harm.

Wellbeing Impacts (Psychological and Psychophysical)

The stress and anxiety caused by climate change and its impacts can affect physical and mental health. Natural disasters and long term changes in the environment can lead to psychological distress, depression and anxiety. How people would react to long term uncertainty has been discussed in various studies.

Wellbeing: a deeper dive

Relative to climate change, there are studies involving natural disasters that provide a clearer indication on what could be expected from these impacts. Relative studies include “*understanding the interacting factors that influence social vulnerability*” [Frigerio, Zanini, Mattavelli, and De Amicis, 2016.] One key lesson learnt is that any community impacted by events requires that “*social vulnerability indicators must be tailored locally*” [Joakim, 2008]. Other studies raise the topic of climate change, and the future workplace impacts from it, without investigating the exhaustive gambit of issues.

The *workplace safety and the future of work study in New Zealand* commissioned by WorkSafe New Zealand noted: “*These factors and others, such as the need to respond to climate change, are interacting to create a host of factors that fall under the future-of-work umbrella.*”

[Hennecke, J., Meehan, L., & Pacheco, G. (2021). New Zealand Work Research Institute, Auckland.]

How these fields of wellbeing and safety are developed to address climate change facets is currently not understood and any integrated perspective will take time to authenticate.

Summary of Themes

Each theme identified could form the basis for its own dedicated analysis however this is not the intent of this discussion and may form the outline for further work.

The discussion themes should form the parameters to be analysed in any risk assessments relating to “*impacts from climate change*”. Without further information and discussion with people in top management, it is not clear what changes to existing risk appetite and risk tolerance conventions need to occur.

Any policies, procedure and processes reviewed to include “*climate change impacts*” needs to determine what resources are in place to support a responsive and recovery ready workplace. It is incumbent upon health and safety professionals to ensure that our leaders have been trained to recognise and address signs of distress from their people.

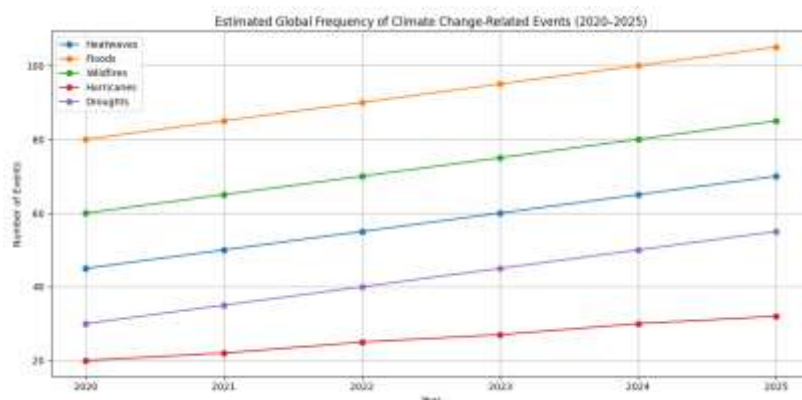
Even post-pandemic, the rise in the understanding of physiological and psychophysical wellbeing has remained low in New Zealand, and indeed, globally. Studies are underway on the psychological effects from the pandemic and no doubt these will provide future guidance for other professionals. There are long term studies from post disaster events, especially earthquakes, that investigate what physiological changes development from exposure to the results of climate driven events. Both physiological and psychophysical negative safety aspects will be magnified by climate changes and will require us to make improvements within these fields.

What we don't know (and it's a lot)

- A. Climate change is not an exact science and therefore the application of a risk management approach to potential impacts requires that risk management tools are robust, adaptable, current and authentic. How tools will be standardised across industries is unknown.
- B. It should be noted that the outcome of risk assessments for climate induced risks do not always provide scope for the integration of multiple scenarios at the same time or how emergency services may prioritise supply of services for any given event.
- C. For any natural disaster, how that disaster impacts on the socioeconomic situation for individuals cannot always be forecast, as everyone's personal preparedness is unknown. There is research into general socioeconomic trends however how this data is impacted by climate change is again unknown.
- D. New Zealand, as a developed country, has reasonably sound disaster management plans in place, and these are supported by several agencies apart from common emergency services. However, recent government reviews have found current response planning lacking. *"A lack of adequate communication between parts of the emergency response meant decisions were not timely, and the public did not always receive the necessary warnings to ensure physical safety and to protect property, the enquiry found."* [Rob O'Neill, Reseller News, 2025.]
- E. Research on the impact of climate change in the workplace in New Zealand is extremely limited.
- F. As demonstrated by the Christchurch earthquake of 2010 and the subsequent 10,000 plus aftershocks, the access to mental health services is extremely limited and this situation remains static for a substantial timeframe. (Research shows it took more than eight years to increase mental health services to meet the required service level.) In relation to the stressors caused by continuous climate change, there is little in the way of research or data, of what level of external continuous support would be accessible to people.
- G. ALARP; It appears in this point in time there is no consensus on a model that supports or aids health and safety practitioners in determining the risks introduced by climate change

versus a Cost Benefit Analysis (**CBA**). Therefore, what are considered as ALARP actions for climate change risks? (What is quantifiable, and what is belief based assumptions or incomplete studies?)

- H. The Climate Change Science Institute has stated that *“climate adaptation is increasingly being framed in the context of risk management.”* They have made the following definitions that are substantially different to standard health and safety industry terminology for the variables creating the risk. *“Hazards plus Exposure plus Vulnerability equals Risk”*, and that risk equals impacts, rather than the level of harm. Typically risk management practice would state that vulnerability and risk are intertwined and not separate. Whether this terminology survives and is adopted is also unknown.
- I. What standards are being developed to classify vulnerability based upon climatic conditions? In the short to medium, will it be fundamentally reliant on health and safety professionals, either as individuals or as a member of a collective group, to identify, classify and determine remediation actions for each possible climate change scenario?
- J. What are the adaptation costs that may be incurred when considering hazard controls? The underpinning knowledge and assumptions made for these controls will have to be rigorously challenged by practitioners and their peers.
- K. The following graph illustrates the estimated global frequency of major climate change-related events from 2020 to 2025. These events have been grouped by type to highlight trends and potential implications for health and safety planning.



As the graph demonstrates, the increase in climate related events is explicit.

Climate Change and Its Impact on Workplace Health and Safety:

A Strategic Perspective

Engaging with colleagues and businesses on the intersection of climate change and workplace health and safety has consistently sparked robust dialogue. However, these discussions often gravitate toward the broader issue of climate change itself, rather than its specific implications for health, safety and wellbeing. As highlighted by several researchers, the psychological complexity surrounding climate change presents a significant barrier to maintaining focus on workplace specific concerns. This challenge is compounded by the lack of clear, actionable guidance from policy makers and institutions, leaving many directors and practitioners uncertain, and in some cases, genuinely perplexed, about what is expected of them.

Art Markman, writing for the *Harvard Business Review* on 12 October 2018, observed that *“ignoring climate change in the short term has benefits both to individuals and to organisations,”* and noted that *“climate change is a nonlinear problem. People are really good at making judgments of linear trends.”* [See the acknowledgements section for a link to the full article.] The International Labour Organization (ILO), in a media release dated 22 April 2024, outlined the health consequences of climate change, *“which include cancer, cardiovascular disease, respiratory illness, kidney dysfunction, and mental health conditions.”*

Given these risks, integrating climate change as a core element within the Enterprise Risk Management (ERM) frameworks is essential. ERM models, being modular and matrix driven, offer the flexibility to incorporate new risk dimensions. Climate change, as a dynamic and multifaceted risk, has the potential to reshape organisational risk acceptance and introduce new enablers. The organisation’s risk appetite and aversion will be central to determining how climate related risks are embedded within the ERM structure.

Australia and New Zealand, identified by the UK-based journal *Sustainability* as two of five global climate havens, are uniquely positioned to lead efforts in assessing climate change impacts on their populations. Notably, both countries reference ILO findings on their respective health and safety agency websites. However, despite growing professional interest in legislative and regulatory developments, there is

currently no confirmed government action specifically addressing climate change within workplace health and safety frameworks. Broader studies are underway in both nations, but targeted initiatives remain absent.

To effectively manage health and safety risks associated with climate change, organisations should adopt an incremental approach. This allows for continuous data collection and evaluation against existing controls. A critical question for senior leadership is going to be: *How confident are we in controls that have neither been tested nor benchmarked against industry peers?* With most businesses yet to consider climate change in their risk planning, envisioning transformative controls remains a significant challenge.

Climate change affects everyone. Its implications for workplace health and safety are profound and demand transformative solutions. Just as the Industrial Revolution prompted a fundamental shift in safety practices, addressing climate change will require a similarly bold and systemic transformation in risk management.

SOURCES OF INFORMATION AND ACKNOWLEDGEMENTS

*New Zealand and Tasmania (Australia) are considered as a future climate refuge by climate scientists in Australasia, naming these places as world leading climate havens. [National Geographic 2022].

Frigerio, Zanini, Mattavelli, and De Amicis; "Understanding the interacting factors that influence social vulnerability: a case study of the 2016 central Italy earthquake."

WorkSafe New Zealand

Civil Defence New Zealand

Safe Work Australia

Health and Safety Executive UK

Climate Change Science Institute

New Zealand Climate Change Research Institute

International Labour Organisation

International Register of Certified Auditors

Chartered Quality Institute

"Climate action in Aotearoa New Zealand SMEs – current trends, drivers and barriers", April 2024; sustainable.org.nz

"NEMA leads emergency systems revamp with broad-reaching request for information", 22 July 2025, Rob O'Neill, Reseller News

[Why People Aren't Motivated to Address Climate Change](#), Harvard Business Review

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