

ABSTRACT

A proposed integrative conceptual framework has been developed for the Australian context to promote understanding, uptake and action toward the Paris Agreement for Climate Change, the Sendai Framework for Disaster Risk Reduction (DRR) and the 2030 Agenda for Sustainable Development using the National Framework for Disaster Risk Reduction. It is hoped that through compatibility with the existing Australian Work Health and Safety culture, this integrative framework can help promote understanding, uptake and action. WHS 2.0: World Health and Safety is designed to 'bolt' disaster risk reduction values and actions onto existing Work Health and Safety values and infrastructure in ways that are straight forward to understand. Implementation of such a conceptual framework will have positive impacts across society in terms of improved social, cultural, environmental and financial resilience.

WHS 2.0 World Health and Safety: integrating disaster risk reduction and sustainable development into every workplace using the Sendai Framework, Paris Agreement and the Sustainable Development Goals

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Introduction - identifying a gap in understanding and implementation of existing frameworks

Lofty frameworks are not all easily translatable into people's Key Performance Indicators. One might readily ask what the Sendai Framework, Paris Agreement and the 2030 Sustainable Development Agenda have got to do with employment arrangements. A manager might also consider whether they could implement any of the frameworks and still afford to pay staff? The world is changing, and Paris, Sendai and the Sustainable Development Goals (SDGs) are designed to help society adapt. The kinds of changes they urge will certainly reduce harm in this new era of risk (United Nations Framework Convention on Climate Change (UNFCCC) 2015, United Nations International Strategy for Disaster Reduction (UNISDR) 2015, UN General Assembly 2015).

The National Framework for Disaster Risk Reduction has translated the Sendai Framework for Disaster Risk Reduction into a framework for action in the Australian context. While acknowledging that governments and large industry hold responsibility for substantial change, it directs all sectors to manage and reduce disaster risks that fall within their scope of responsibility, neither creating new risks nor exacerbating existing risks. It also outlines that investment in disaster risk reduction can have broad social and economic benefits across all sectors regardless of whether a hazardous event occurs (Department of Home Affairs 2018, p. 3-4, p.21). Disasters cost Australia \$18 billion year (Deloitte Access Economics 2017).

By not only managing disasters, but also managing the risk of disasters the effect will be to:

- Reduce disaster induced harm
- Reduce disaster induced costs
- Increase quality of life and opportunities (Department of Home Affairs 2018)

The Risk Informed Development paper (Opitz-Stapleton et al. 2019) says that all new developments need to be risk informed which means that world is no longer accepting a 'blind-eye' approach to disaster risk in human decision-making frameworks. While this significant change is increasingly well understood, there is still a substantial gap in terms of implementing risk informed development and decision-making frameworks in Australian workplaces, including even Emergency Agencies whose primary role is involved with Disaster Risk Reduction, or in Environmental Agencies whose primary role is in environmental resilience.

What is required is prompt uptake of Disaster Risk Reduction and Sustainable Development, yet many people may be:

- Unaware of the concepts
- Unaware how to integrate them into operations
- Unaware how to pay for required changes.

While the Sendai Framework, SDGs, Paris Agreement and the National Framework for DRR are related, reference each other, and call on 'all of society' for implementation, it can still be confusing for any individual, organisation or government department to understand the relationships between them and how they can be implemented within current workplace operations. Furthermore, without integration into core values how can a company or society justify efforts towards the goals? As such the National Framework for Disaster Risk Reduction remains the terrain of high-level executives in large operations and is not yet achieving a groundswell cultural shift even though we are one-third through the 15-year commitment of Sendai, Paris and the SDGs. Implementation is voluntary, haphazard therefore comprehensive action is not observable.

Siloed frameworks under consideration for an integrative conceptual framework

There are several frameworks intended to reduce disaster risk and increase community, cultural and environmental resilience which this proposal hopes to interlink.

Work Health and Safety legislation and culture has improved safety and reduced workplace injuries in Australia since the 1970s with notable advances since legislative updates in 2002 and 2012. The underlying goal is to value human life over profits (Inspire Education 2013). The current strategy, Australian Work Health and Safety Strategy 2012-2022 (Safe Work Australia 2012) aims to further reduce workplace deaths

by 20 per cent, as well as time-off claims and musculoskeletal injuries by 30 per cent. The Hierarchy of Hazard Controls is a commonly used system of understanding different types of hazard control. There are laws, strategies and international standards OHSAS ISO 18001 and AS/NZS 4801 designed for ensuring that organisations have Occupational Health and Safety and Occupational Health and Safety Management Systems.

Environmental Resilience has been developed through EMS – ISO 14000 series to promote effective environmental management systems in organisations through standardisation. The ISO 14000 series began in 1996 and was revised in 2004 and 2015 and relates to the ISO 50001 Energy Management System.

Business Continuity tools are broadly available through both government and ISO standards. Examples include Get Ready NSW, Australian Council of Social Services (ACOSS) Six Steps, Business.gov.au and the Emergency Management frameworks, ISO 22301 – Business Continuity, ISO 31000 – Risk Management and ISO 27001 - Information Security.

The Paris Agreement on Climate Change has been internationally ratified with the purpose of reducing the risks associated with climate change by keeping global warming well below two degrees above pre-industrial temperatures.

The Sendai Framework on Disaster Risk Reduction is the global blueprint to reduce disaster risk. It is a 15-year international framework that shifts focus from disaster management to cross-sectoral disaster risk management. It targets risk awareness, risk governance, risk management financing and actions to reduce risk and build better. The expected outcome across the next 15 years is to realise 'the substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.'

The 2030 Agenda for Sustainable Development are a whole of society approach towards sustainable development. The SDGs establish that sustainable development and disaster risk reduction are interconnected, that without disaster risk reduction, gains in sustainable development, which have taken years to establish, can very quickly be reversed. Conversely risk-informed sustainable development strengthens the very drivers of resilience such as health and wellbeing, sustainable cities and life on land which enable people, environments and economies to respond and recover well when extreme events or disasters occur.

Risk-informed development allows for development to become a vehicle to reduce risk, avoid creating risks and build resilience. Only resilient development can become sustainable development; sustainable development initiatives will fail unless they are risk-informed. Risk, resilience and sustainability knowledge and actions need to go hand-in-hand.

Opitz-Stapleton et al. (2019, p. 10)

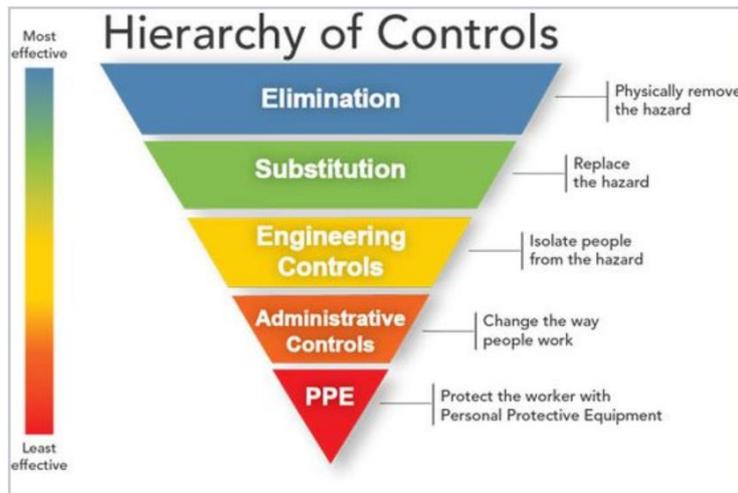


Figure 1: The Hierarchy of Controls, which is commonly known in Australian workplaces. Infographic by the US National Institute for Occupational Safety and Health (NIOSH 2015).

One key driver of resilience underlying the Sustainable Development Goals is trust between people, which is social capital, without which sustainable development could not be viable. Corporate social responsibility (CSR) is a voluntary model with which organisations are generating social capital. Potential coherence between corporate social responsibility, social capital and the Sustainable Development Goals could be investigated further.

The National Framework for Disaster Risk Reduction (Department of Home Affairs 2018) steps forward from the National Strategy for Disaster Resilience (Council of Australian Governments (COAG) 2011) and integrates the Sendai framework for Disaster Risk Reduction for the Australian context, including the Sustainable Development Goals and the Paris Agreement. It clearly articulates the drivers for change and outlines four key priorities for action; understanding disaster risk, accountable decisions, enhanced investment, and governance, ownership and responsibility. The Framework outlines that while Governments and large industry need to take coordinated action to reduce disaster risks, all sectors must cultivate a culture of disaster risk reduction awareness and action (Department of Home Affairs 2018).

The National Framework for Disaster Response complements the National Framework for Disaster Risk Reduction and the Sendai Framework. Rather than being a single document, it includes various disaster response arrangements such as the AIIMS (Australasian Interagency Incident Management System) and laws such as the State Emergency Service Act.

Problem identified – Poor implementation and enduring risk exposure

Climate change is increasing disaster risks while population growth and urbanisation is exposing more people to those risks. Since 2007, Australian disaster recovery has cost an

average of \$18 billion per year which is predicted to rise to \$39 billion per year by 2050. This calculation does not include predicted effects of climate change, nor the intangible costs of disasters such as ongoing social and economic impacts which are estimated to be equal to or higher than the tangible costs (Deloitte Access Economics 2017, cited in Department of Home Affairs 2018, p. 6).

As disaster risk increases, the capacity of communities and systems to be resilient is diminished. This [National Framework for Disaster Risk Reduction] focuses on reducing disaster risk as one key component of enabling resilient communities and economies in Australia.

Department of Home Affairs (2018, p7)

Meanwhile Australian workplaces and economies grapple with and perhaps resist (Phelan, Henderson-Sellers & Taplin 2012) understanding the agreements, their relevance and applicability to each operation, even as 95% of companies in the Global Crisis Survey acknowledge that they are anticipating a crisis of some description (PricewaterhouseCoopers 2019). However, the agreements for disaster risk reduction cannot be effectively implemented if it is unclear how they relate to each workplace and work role.

Hypothesis – An integrative conceptual framework could improve outcomes

If the frameworks of disaster risk reduction - Sendai, Paris and the SDGs - can be understood in a way which is compatible with existing cultural infrastructure, it will result in improved implementation and consequent reduction of risk, harms and cost across the Australian economy.

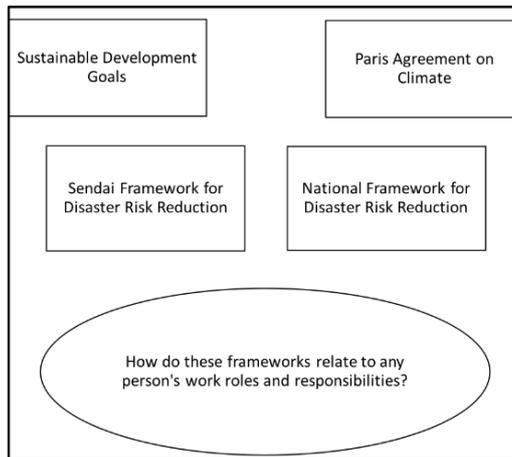


Figure 2: The links between these agreements and individual work responsibilities are not clear.

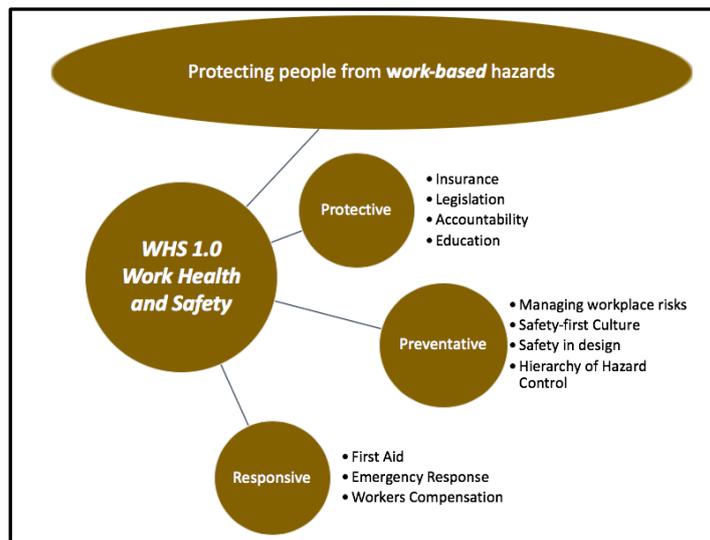


Figure 3: Work Health and Safety is a system that values people over profit. It protects people from work-based hazards through minimising the chances of people getting hurt while also ensuring that there are well understood systems to minimise harm when things do go wrong.

Proposal and discussion – An integrative conceptual framework: WHS 2.0

Broadly speaking WHS 1.0 Work Health and Safety is about reducing dangers in a workplace and knowing what to do when things do go wrong. It is a value of care for people in the context of everything that could go wrong in a workplace. Workplaces are complex interacting systems and as such, WHS legislation has ways of managing complex risks.

WHS 2.0: World Health and Safety is a proposed integrative framework which recognises that workplaces are part of the complex systems of the world. It acknowledges that exercising a community of care within the workplace is not complete without considering and managing risks for the hazards of the world. Every workplace in Australia has a fire evacuation plan but WHS 2.0 works towards ensuring every workplace also has relevant World-Health and Safety Emergency Procedures such

as utility failure, flood and bushfire action plans. It asks for example how to communicate effectively with staff in the case of an event when telecommunications and/or transport systems may be disrupted. It asks how to exercise duty of care for staff and clients in such an event, and how to design resilient work systems that enable flexibility and problem solving for an emerging situation which does not fit a prescribed response plan.

Design for collaborative survival rather than competitive advantage is a priority. This is at the heart of the transformation of the business model. Conventional business resilience and contingency planning has focused on attaining a competitive advantage to leverage profit from being the last business standing in a crisis. However, this is counter to the Sustainable Development Goals which focus on 'leaving no-one behind'. Like WHS 1.0, WHS 2.0 contains a moral directive to value people over profit. Therefore, crisis response as well as business as usual should include values of sustainable development and corporate social responsibility. As WHS 1.0 has provided improved outcomes for the whole economy through its embedded value, so will WHS 2.0.

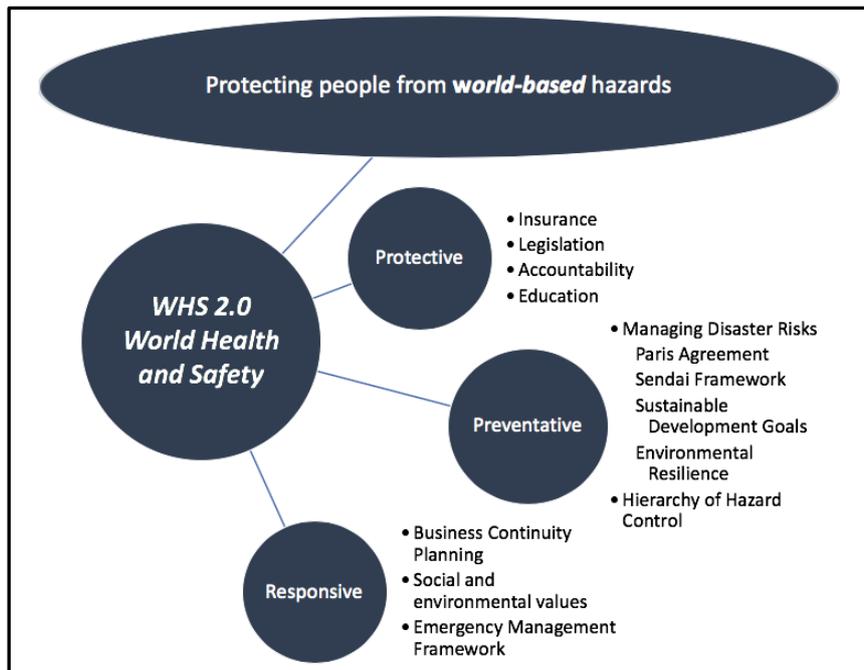


Figure 4: World Health and Safety is a proposed integrative framework. It is also a system that values people over profit. It protects people from world-based hazards through minimizing the chances of people being harmed while also ensuring that there are well understood systems in place to minimise harm when things do go wrong.

These values will underpin business models which profit through supporting the wellbeing of the whole, rather than models which profit through the suffering of others such as modalities of disaster capitalism. In this frame, crisis response is not only about maintaining business continuity to maintain market-share, but to follow duty of care for staff and clients. More broadly that an organisation could aim to maintain business continuity to provide services and/or staff for disaster prevention, response and recovery.

In New Zealand there has already been some progress toward integrating the Sendai Framework for DRR into the Health and Safety at Work Act for example through interfacing with the 2017 earthquake-prone building regime (Ministry of Business, Innovation and Employment (NZ) 2017). In a parallel integrative project, also in New Zealand, Phibbs et al. (2016) have synergised the Sendai Framework with Public Health concepts to facilitate better understanding of Sendai's holistic approach to risk reduction.

Relating the Hierarchy of Hazard Control from WHS 1.0 to WHS 2.0

The hierarchy of hazard control can be used to understand and manage risk throughout organisations from strategy level, to training, to everyday work practice. It could also be used to understand and integrate the big three frameworks for disaster risk reduction; Paris, Sendai and the SDGs. For example if there is a risk identified in a workplace, such as a dangerous bandsaw, the Hierarchy of Hazard Control can be

used to manage this risk, and reduce potential harm. In identifying and managing world-based hazards the same Hierarchy could be applied.

Priority 1 Elimination poses the question of eliminating the risk. It asks whether the workplace can do without the dangerous bandsaw. In the case of WHS 2.0 World Health and Safety includes managing global hazards which result in increased risks for all, such as climate change. Agreements which relate to eliminating or mitigating these hazards include the Nuclear Non-proliferation Treaty, and the Paris Agreement on Climate. A WHS 2.0 policy would be consistent with and actively implement such agreements.

Priority 2 Substitution poses the question of safer options, for example renewable energy, which are consistent with mitigating climate risks and the Paris Agreement.

Priority 3 Engineering asks if it is possible to redesign or move people away from a hazard. In the case of the bandsaw, it would include design safety improvements such as a better guard and automatic power shutoffs. In the case of WHS 2.0, Engineering controls would include elements of Sendai Framework for Disaster Risk Reduction such as understanding disaster risk, managing disaster risk and reducing disaster risk through building better resilient infrastructure.

Priority 4 Administration seeks to manage risk through providing training and accountability. In the case of the bandsaw, a user would for example complete training and their fatigue levels might be monitored. In the case of WHS 2.0, disaster risk governance (UNISDR 2015) seeks to attribute disaster risk exchanges more explicitly through clear agreements.

Priority 5 Personal Protective Equipment or PPE offers a final layer of protection when all risks cannot be managed. Safety glasses and hearing protection offer immediate protection for the worker using the bandsaw. In the case of WHS 2.0, the quality of resilience is what is needed to be able to ‘bounce back’ when a risk cannot be completely controlled. In order to build resilience into society, the Sustainable Development Goals provide a broad-based ground-up framework for sustainable (risk informed) development which can improve quality of life in ways which give people and communities better capability to ‘bounce back’ from adverse circumstances that could not be prevented.

Considering that world-based hazards can be reduced, not eliminated, ground-up sustainable development which is compatible with both risk management and hazard elimination will produce resilience and wellbeing in people’s daily lives,

thereby reducing vulnerability, risks and hazards.

A Hierarchy of Hazard Controls prioritises top down change whereas it can be seen that Work Health and Safety also goes hand in hand with a bottom up safety-first culture where people look out for hazards and take care for each other’s wellbeing. When top down and bottom up approaches are used, governance systems take responsibility yet also empower all staff to become equipped and act effectively.

Through risk mitigation, risk management and building resilience, organisations can establish a WHS 2.0 system which works to reduce disaster risk from the sky down (Paris Agreement reducing greenhouse gasses) and ground-up (SDG 15 - Life on Land), and broadly to provide enhanced social and environmental quality of life with immediacy.

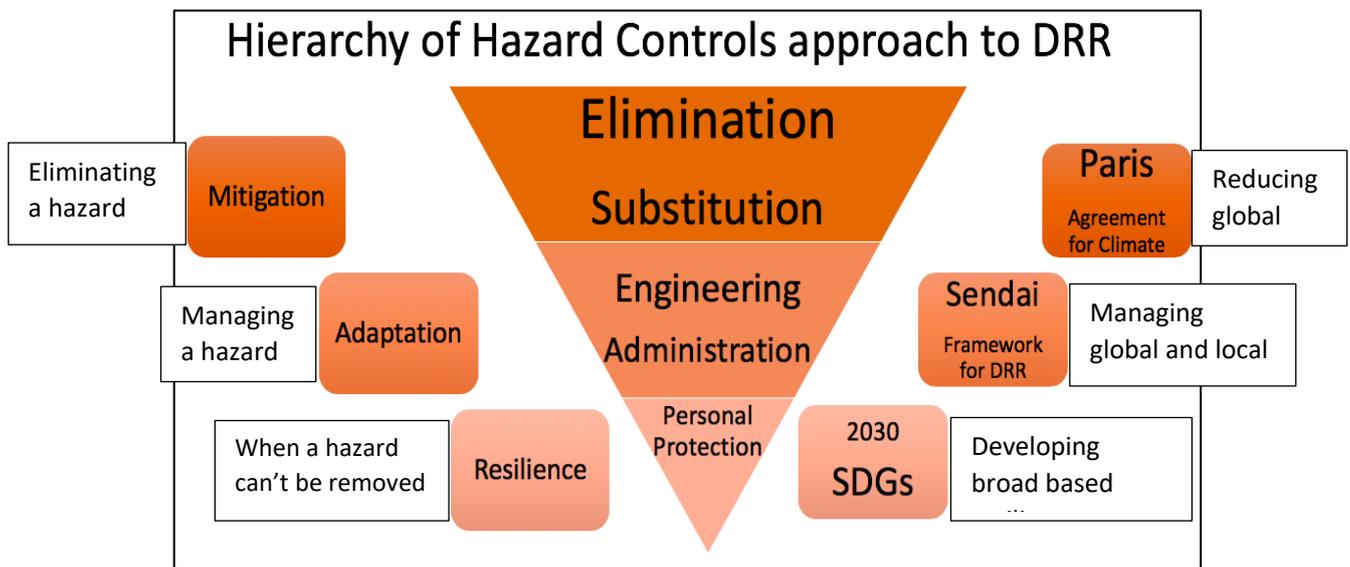


Figure 5: A hierarchy of hazard controls approach to disaster risk reduction (DRR) which visualises interconnections between mitigation, adaptation and resilience with Paris, Sendai and the SDGs.

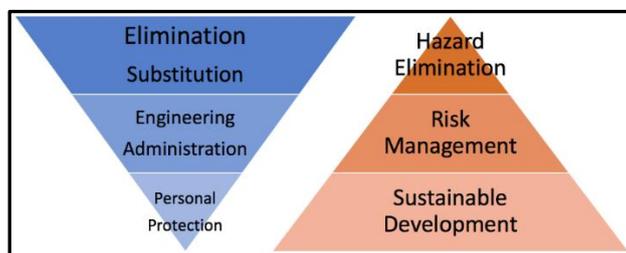


Figure 6: Top-down and bottom up hazard elimination and sustainable development.

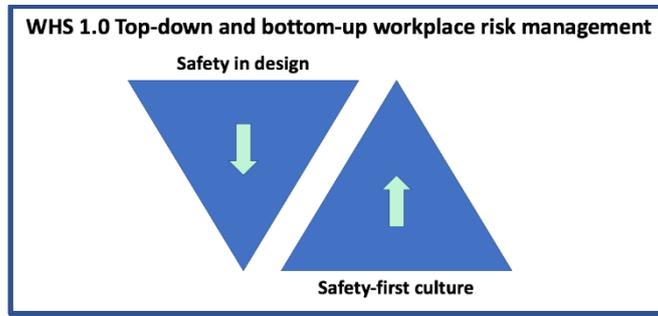


Figure 7: WHS 1.0 Top-down and bottom up workplace risk management.

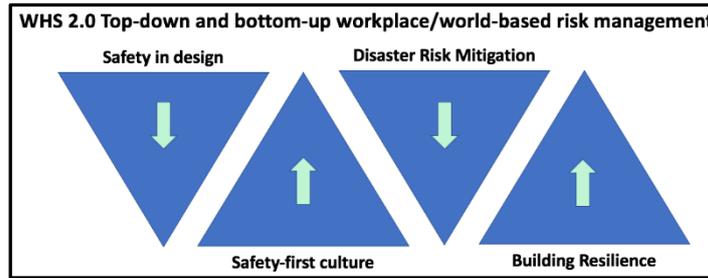


Figure 8: Working from the sky to the ground and ground-up gives both poetry and meaning to World Health and Safety which integrates Paris Agreement, Sendai Framework and the 2030 Agenda for Sustainable Development.

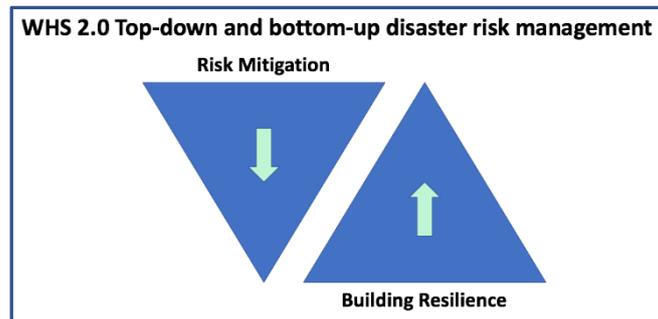


Figure 8: Combining top-down and bottom-up approaches is consistent across Work Health and Safety and World Health and Safety. This can be transposed into a logo concept for WHS 2.0 as illustrated.



Figure 9: WHS 2.0 is a straight forward concept which demonstrates relevance between people's working lives and the International frameworks for disaster risk reduction.

Establishing baselines and monitoring success

Suggested first steps for any organisation could be to engage the existing WHS committee to evaluate baseline policies in terms of disaster preparedness such as communicating effectively with and maintaining duty of care of staff and clients during world-based crises such as utility failure or super-storm.

Another step would be to engage business continuity planning so that operations can be maintained throughout various foreseen and unforeseen crises.

The third stage would be to do a gap analysis, baseline evaluation of values, policy and practice to develop a strategy to minimise and monitor the disaster risk impacts of the organisation. The intent is to monitor that each operation is not exacerbating world-based disaster risks. This could be done through implementing:

- Paris Agreement reductions in greenhouse gas emissions
- Complying with the Sendai and National Frameworks for Disaster Risk Reduction
- Identifying how to support local and distant drivers of resilience by implementing the Sustainable Development Goals, environmental and cultural resilience policies

A model of business resilience which increases net disaster risks is now contra to national and international standards (Department of Home Affairs 2018). Through the proposed integrative framework of WHS 2.0 organisations, managers and staff could more readily understand and implement the international frameworks for reducing disaster risks. They can provide net benefit through delivering services and products that can also reduce vulnerability of staff, clients and environment. WHS 2.0 World Health and Safety enables organisations from all sectors to clearly see and apply next-level duty of care for people and environment which national and international governments have so clearly mandated and for which the economics are compelling (Deloitte Access Economics 2017; Department of Home Affairs 2018).

The questions as to investment capital for disaster risk reduction and emerging sustainable business models remain unexplored in this paper, however the costs of not adapting are clearly escalating. The Department of Home Affairs (2018) urge accountable decision making and enhanced investment for disaster risk reduction as priorities two and three of the Framework. The Framework includes empowering communities, individuals and small businesses to make informed and sustainable investments and urges all entities to consider potential avoided loss (tangible and intangible) and broader benefits in all relevant decisions (Department of Home Affairs 2018, p. 9).

While the question of paying for disaster risk reduction remains open, it is hoped that this proposed integrative conceptual framework, WHS 2.0 World Health and Safety, is of assistance to organisations and workers of all types in:

- Gaining awareness of the relevance of disaster risk reduction
- Developing ways to integrate disaster risk reduction into their daily and strategic operations through existing Work Health and Safety frameworks

Conclusion

There is an innate connection between the values of Work Health and Safety and the values of Disaster Risk Reduction. Using a Work Health and Safety lens to apply the values and goals of disaster risk reduction across every workplace can help to make DRR concepts accessible to people in all parts of society and stimulate urgent, complex-systems implementation in a way which truly increases resilience. Next steps for this research are to establish some case-study organisations to document the application, effectiveness and impact of WHS 2.0 policies and practice.

Acknowledgements

I would like to acknowledge the Awabakal people, traditional owners of the land on which this was written and whose ancestors have watched as I write. I also acknowledge my mum, Dyann Dixon, Stephen O'Keefe of Royal Australian Navy, Jim McArthur of Newcastle SES, Karl Mallon of Climate Risk Australia and Suman Lahiry of University of Newcastle for their mentorship in this project.

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