

## X. Work health and safety, adaptation and climate change

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Our old world, the one that we have inhabited for the last 12,000 years,  
has ended, even if no newspaper has yet printed its scientific obituary.  
(Davis, 2018: 202–203)

The evidence is in. Human development has produced changes to the Earth's climate that are driving higher average temperatures, more hot days, longer heatwaves, and extreme weather in the form of droughts, floods and fires. The Black Summer bushfires in Australia in 2019-2020 were a turning point for many regarding the impacts of climate change on planetary life, when more than 24 million hectares burned killing 33 people directly and the effects of smoke killing almost 450 more (Humphries, 2022). A deep hole in the ozone layer was triggered, and three billion animals were killed or displaced. Catastrophic wildfires across both hemispheres of the globe are now commonplace, as are floods. In September 2023 alone, there were immense deluges on almost every continent, including Libya, Greece, Hong Kong, Shenzhen in China, Nevada in the United States, and Rio Grande do Sul in Brazil. In addition, 2023 delivered heatwaves in Europe that killed thousands in their homes, and the United Nations reported that drought across the Horn of Africa had pushed more than 20 million people 'into crisis levels of food insecurity' or death and that climate change had made this outcome 100 times more likely (Paddison, 2023).

Climate change is also a fundamental disruption to our working lives. At the nexus of accelerating global heating and efforts to achieve decent work sits a range of immediate and longer-term challenges for labour. These include job losses, decreased productivity, industry wind downs, and growing work health and safety (WHS)<sup>1</sup> impacts. Mitigating these will require a rapid transition away from fossil fuel energy production to renewables, and significant workplace adaptation to address the consequences of global heating that are already 'locked in'.

To date, the problems of energy industry reorganisation, green jobs, and 'just transitions' have drawn the most attention from social scientists. These issues have also been the main focus of labour and climate movements seeking meaningful transformation of production and consumption. The focus on mitigation of the climate threat is understandable, as it is crucial that we redesign our lives on a more sustainable basis and protect labour from unemployment and diminishing conditions that may occur because of these shifts. Adaptation has, for the most part, been 'a neglected if not a taboo topic in climate policy' for more critical voices 'because some feared [it] may reduce the policy commitment to mitigation' (Dolšák and Prakash, 2018: 329). Yet, adaptation should not be a second order issue; we need to urgently adjust to present and future WHS consequences of global warming. Successful and socially just adaptations require large scale planning and immediate action by national and local governments, as well as by supranational bodies such as the International Labor Organization (ILO). Climate change must be made an integral component of WHS and decent work, and 'needs to be integrated in

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<sup>1</sup> The term work health and safety (WHS) is used in this paper. This is understood to have the same meaning as the terms occupational health and safety (OHS) and occupational safety and health (OSH), which are also used in the literature and policy making — the latter primarily used by the International Labour Organization.

etiologic and intervention effectiveness research, and also in surveillance, risk assessment, and risk management’ (Schulte et al., 2022: 15). This is particularly the case in relation to high heat, as what ‘the health consequences of a hotter climate are and how extreme heat is managed will be two of the defining questions of this decade’ (The Lancet, 2021).

This chapter explores the WHS impacts of climate change, with particular attention on the problem of high heat. First, I situate the WHS context of climate change, and provide an overview of the growing problem of extreme temperatures given it is the most significant workplace hazard we face. I then outline how the Sustainable Development Goals (SDGs) apprehend (or fail to) the problem of climate change driven WHS impacts. I conclude by arguing that the notion of climate precarity, alongside a radical politicisation of adaptation, can usefully frame how labour can act in its own interests in this context.

## Climate change, health and workers

Climate change is impacting human wellbeing in diverse ways. A review study by Ferrari and colleagues (2023: 486) outlined how current research is investigating ‘the proliferation of diseases transmitted by vectors, insects, or through water, respiratory diseases caused by air pollution, heat-related illnesses, and even the risks of climatic disasters’. *The 2022 Report of the Lancet countdown on health and climate change* drew attention to the effects in increasing excess deaths and hospitalisations, as well as how it is ‘affecting the spread of infectious diseases, putting populations at higher risk of emerging diseases and co-epidemics’ (Romanello et al., 2022: 1619). Climate change will also impact food security, increase the cancer burden, and drive significant indirect wellbeing effects ‘often characterized by a marked multifactorial etiology, long latencies and a more complex and partly unknown link with climate variables’ (Grandi et al., 2023: 2). This will progressively place pressure on health systems worldwide.

While workers are already commonly exposed to climate-related hazards, including inclement weather, high heat and humidity, UV exposure (and the risk of skin cancer), and pollution and smoke from fires, the rapidly changing climate is increasing the prevalence or frequency of these risks. High heat is the primary ‘natural’ cause of injuries and fatalities for workers and is especially a risk for those engaged in physical labour and working in humidity. Climate change temperature increases accounted for one-third of all heat-related deaths worldwide between 1991 and 2018 and that proportion is growing (Vicedo-Cabrera et al., 2021). While heat waves and extreme temperatures are a particular danger, heat also impacts workers at moderate temperatures when workers are doing physical labour or there are higher levels of humidity. One study found that risk of injury and illness increased above the optimum temperature of 25°C and that moderate temperature ranges had the greatest burden in terms of injury claims, yet the greatest risk occurs at extreme temperatures (Varghese et al., 2019).

In addition to heat, increasing floods and fires also involve risks for workers, including those who are tasked with emergency services, clean up and rebuilding. The development of new technologies to help move humanity away from reliance on fossil fuel production can also bring novel WHS problems. Shulte and colleagues (2016) set out ten climate-related WHS hazards as:

- (1) increased temperature
- (2) air pollution
- (3) ultraviolet radiation
- (4) extreme weather
- (5) vector-borne diseases
- (6) industrial transition

- (7) changes in built environment
- (8) mental health effects
- (9) economic burden
- (10) climate interventions (e.g., geoengineering).

This framing helpfully delineates the scope and scale of the impacts of the WHS changes we are confronting.

Workers as a population group are ‘very susceptible’ to climate health risks as they are the ‘first exposed to climate change’s damaging effects, often for a longer time and greater intensity than the general population’ (Ferrari et al., 2023: 486). This is because the nature of work, and the social relations involved, effectively ‘force’ workers ‘to endanger themselves to conditions that other individuals could avoid, especially for outdoor activities such as agriculture and construction’ (Ferrari et al., 2023: 486). Outdoor workers, indoor workers without adequate cooling or ventilation, emergency workers who cannot easily take breaks, and workers who frequently move between hot and cold environments are vulnerable. Workers also have diverse physiologies, and their ability to adapt and acclimatise is individualised — people who have medical conditions and certain disabilities, children, and those who are older can all have a difficult time cooling down and coping. Some vulnerable groups are also rapidly growing as a proportion of overall population, such as the elderly, as well as those who live in higher risk locations like the tropics and sub-tropics (WHO and WMA, 2012).

Heat stress is the most significant risk. This occurs when heat is in excess of the level which a body can tolerate, where ‘the body’s internal regulation mechanisms are no longer capable of maintaining body temperature at a level required for normal functioning’ (ILO, 2019b: 17). Increased internal body temperatures ‘occur due to an imbalance between metabolic heat production ( $H_{\text{prod}}$ ) and the rate at which heat can be dissipated from the skin surface to the surrounding environment ( $H_{\text{loss}}$ )’ (Jay and Brotherhood, 2016: 395). An essential way we do this is by sweating, but this is harder to do when it is humid because the air contains more moisture. Symptoms from heat stress can be at the milder end, such as dehydration, nausea, fatigue and irritability, but more serious consequences include miscarriage, heatstroke, heart and other organ failure, and death (Ebi et al., 2021). Hotter temperatures and heat stress impact cognition (Rowlinson et al., 2014), and the likelihood of injuries occurring (Park et al., 2021). There are serious mental health and cognitive impacts, and workers have described the dissociative impacts of these experiences explaining that on hot days they had felt ‘out of it’, ‘like a zombie’, on ‘remote control’ or being ‘zonked the hell out’ (Humphrys et al., 2022: 25). It is not only people working outside in the heat that are at increased risk, as many working indoors without adequate cooling feel it as well. One manufacturing worker told a colleague and I that if ‘you go home after a long [hot] day, you just kind of want to stare at the ground for ten, fifteen minutes, until you, I don’t know, become alive again’ (Humphrys and Newman, 2021: 27).

To look after wellbeing on hot days and during heatwaves, workers need to take certain basic action. Many are simply unable to do the basics of adapting to high heat by taking time to rest, hydrate and recover because of the imbalance of power in their workplace. Workers who are in jobs that are externally paced, be that either by the speed of machines or algorithms, can be severely constrained in managing climate extremes. This includes limiting exertion, doing the most taxing work during the cooler parts of the day, ensuring they rehydrate regularly and adequately, and stopping work for breaks (or stopping all together) so they can cool down. The impacts of very hot days do not end once a person leaves work either, as heatwaves have significant aggregate effect as the days go by and can impact worker’s non-work time — things like sleeping, which again compounds over days, and it can make the drive to and from work

more dangerous (Basagaña et al., 2015). While the home is hoped to be a place of solace and respite for many workers, for those who exert themselves in extreme temperatures and humidity the burden of work ‘extends into periods of rest’ (Carter et al., 2020: 6–7). In some cases workers are ‘unlikely to fully recover before they return to their jobs, impacting workers physically and mentally’ (Carter et al., 2020: 7).

Increasing illness, injury and death from these changes also have significant cost implications for individuals and their families. One billion workers are now exposed to high heat (IPCC, 2021), and in 2019 the ILO stated that by 2030 ‘the equivalent of more than 2 per cent of total working hours worldwide is projected to be lost every year, either because it is too hot to work or because workers have to work at a slower pace’ (ILO, 2019b: 3). In ‘Southern Asia and Western Africa the resulting productivity loss may even reach 5 per cent’ (ILO, 2019b: 3). For workers who are paid based on output or finalising tasks this means they have to work longer for the same income. This includes piece workers and gig workers, and many of those in the informal economy and Global South with fewer welfare state protections. Those who work for themselves, such as farmers, are still subject to the discipline of capitalist social relations, providing them with little choice to cease work or slow down even when aware of the risks. As a result, there will be ‘greater difficulty in achieving economic and social development in the countries affected by this somewhat neglected impact of climate change’ (Kjellstrom et al., 2009: 1). At the same time, the gendered nature of social reproduction will see that the burden of caring for ill or injured workers falls disproportionately to women.

### Increasing focus on WHS, heat and climate change

While the impacts of workplace heat due to climate change are a major health and safety concern, the problem has only begun to be systematically researched and reported on in recent years — most particularly since 2009 (Grandi et al., 2023). Scholars called for a ‘research path accounting for the complex interactions between climate change and occupational health, creating a support to proceed along the road of the prevention’ (D’Ovidio et al., 2016: 324). Since that time there has been increasing attention in the scholarly community, and growing attention from supranational and national governmental organisations. In 2012, the World Health Organization (WHO) and the World Meteorological Association (WMA) published the *Atlas of climate and health* which identified heat stress as an emerging challenge for the globe, and noted that by ‘the 2050s, heat events that would [at that time] occur only once every 20 years will be experienced on average every 2–5 years’ (WHO and WMA, 2012: 40). The 2015 ILO guidelines for a just transition called for governments to ‘conduct assessments of increased or new OSH risks resulting from climate change’ to ‘identify adequate prevention and protection measures to seek to ensure occupational safety and health’ (ILO, 2015: 15).

In 2019, the landmark ILO report on the heat related aspects of WHS, *Working on a warmer planet: The impact of heat stress on labour productivity and decent work*, was released. The report set out the vast impacts and risks of climatic heat for health and productivity. The report divided the globe into 20 subregions, and noted four are particularly susceptible: Southern Asia, Western Africa, South-East Asia and Central Africa (ILO, 2019b: 87). In comparison, North America and the subregions of Europe ‘are not significantly affected by heat stress’ in a comparative sense and given areas ‘with high vulnerability to heat stress tend also to be characterized by a lack of decent work’ this sharpens the problem in terms of inequality (ILO, 2019b: 87). Excessive heat levels both aggravate inequality between rich and poor countries, and between population groups within the same country (ILO, 2019b: 3).

Unfortunately, heat stress is often accompanied by other challenges as it is more prevalent in countries where there is a lack of social protection, often alongside high rates of informality and working poverty. The ILO noted that productivity losses due to heat stress are influenced heavily by the sectoral breakdown of the economy, such as ‘the shares of agriculture and construction in total employment’, and that these two sectors also ‘tend to have higher levels of informality, which means that agricultural and construction workers are less likely to have access to health care and other forms of social protection against workplace accidents and injuries’ (ILO, 2019b: 87).

Leading international health experts have called for urgent action to avoid excess deaths from high heat driven by climate change, including national, industry and local planning for workplaces (Jay et al., 2021). They argue such planning can have a real impact on work health and safety and, in the case of rising temperatures, ‘most heat-related morbidity and mortality should be preventable’ (Ebi et al., 2021). Factors which can moderate the risks of heat stress faced by workers and must be part of this planning include: adapting the working environment through cooling where that is feasible; a level of financial security that allows self-employed workers to stop work for periods; the ability of an employee to self-pace and stop work; access to training for workers and supervisors and the presence and enforcement of heat management procedures; and the ability and confidence of workers to take independent action to protect themselves.

Of course, if we are to deliver on the hope of preventing deaths from high heat, we must recognise that the climate crisis does not exist in a vacuum. It is bound up in the global crisis of inequality and embedded in the unequal relationship between workers and employers (Quinlan, 2020). Experts estimate that between 32 million and 132 million will move into poverty due to climate change (Jafino et al., 2020). Climate change is taking place within an already deeply unequal labour market, where exploitation and inequality are built into the bedrock of capitalist development and rooted in ongoing processes of colonisation. This is more than saying inequality shapes the context of climate change. Rather, these twin crises — the climate crisis and the crisis of inequality — have advanced together and that they are mutually dependent. While we might be able to delineate these two things abstractly, they are in fact part of the same unfolding capitalist totality. The tendency to reify the climate crisis, to speak of it as something independent from the processes of capitalist development, misses that they are coterminous — that they have the same boundaries in time and space.

Understanding climate change and labour in this way, as part of an integrated ecological-economic system organising all life on the planet and making all work more precarious, can usefully guide how we might successfully address climate change impacts on workers by mapping the mitigation and adaptation measures that need to be developed and implemented. Unfortunately, the SDG framework does not do this in an effective manner, framing the climate crisis and efforts for decent work as separate questions.

## The SDG framework

The SDG framework and targets were developed via a 3-year global consultation with diverse global stakeholders, in a process considered by the United Nation Secretary-General to be ‘unprecedented’. This ‘transparency and participation in the development of global policy meaningfully addressed serious concerns with the selection of the Millennium Development Goals and targets’ (Frey and MacNaughton, 2016: 10). The agenda contains some bold targets, such as halving those who live in poverty or halving those suffering from hunger (Frey and MacNaughton, 2016: 10). In this vein, indicator 8.5 related to decent work seeks by 2030 to

achieve full and productive employment and decent work for all, including young people and the disabled, and equal pay for work of equal value.

SDG 8 *Decent Work and Economic Growth* envisages action on work health and safety through Target 8.8, whereby countries must ensure action to ‘protect labour rights and promote safe and secure working environments of all workers, including migrant workers, particularly women migrants, and those in precarious employment’. The Global Indicator Framework was developed to monitor progress on the SDG targets, and was adopted by the General Assembly in 2017 (ILO, n.d.). The ILO is the custodian agency for this target, and indicator 8.8.1 requires them to monitor rates of fatal and nonfatal occupational injuries, by sex and migrant status.

The ILO’s Decent Work for Sustainable Development (DW4SD) Platform guides the implementation of the Sustainable Development Goals (ILO, 2022). It sets out a section on health and safety at work under Thematic Area 9, Future of Work, and details the scale and gravity of occupational injuries and illness for workers and economies, in that they estimate that:

... 2.3 million workers die every year from work-related injuries and diseases. An additional 160 million workers suffer from non-fatal work-related diseases and 313 million from non-fatal injuries per year. The economic costs to companies and economies is significant. The ILO estimates that more than 4 per cent of the world’s annual GDP is lost as a consequence of work-related injuries and diseases. (ILO, nd)<sup>2</sup>

The Platform links workers’ health and safety with other relevant SDG efforts and targets. WHS is linked to Goal 3 *Good Health*, and specifically that by 2030 efforts should be made to ‘substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination’. This is embedded alongside Goal 16 *Peace and Justice*, and target 16.6, where countries must ‘[d]evelop effective, accountable and transparent institutions at all levels’ to ensure compliance with appropriate policies to manage this issue.

These WHS goals and targets are linked to a range of policy outcomes:

- The ratification and application of international labour standards (outcome 2).
- The formalisation of the informal economy (outcome 6).
- Promoting workplace compliance through labour inspection (outcome 7).
- Protecting workers from unacceptable forms of work (outcome 8).
- Establishing strong and representative employers’ and workers’ organisations (outcome 10).

While the ILO also has extensive standards and guidelines in relation to OHS, the organisation notes that when formulating its guidelines for just transition the ILO tripartite constituents deliberated and concluded ‘that the current ILO normative framework does not effectively address new forms of [WHS] risks’ such as climate change (ILO, 2019a: 47). There have been more recent efforts however, albeit somewhat limited, to address this problem.

In this overall framing of WHS as it relates to climate change, there are four key problems of connection and integration: the WHS framework makes no mention of climate change; the decent work WHS target and the climate action SDG are not linked; WHS and no poverty are insufficiently embedded together; and WHS objectives are undermined by a reliance on market-based solutions traditional notions of development. I’ll briefly explore each of these.

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<sup>2</sup> At the time of writing, in mid-late 2023.

First, while the ILO DW4SD Platform acknowledges WHS as an issue embedded in systems of global inequality and state capacity, infrequent mention is made of climate change impacts in relation to delivering occupational health and safety despite it being a key emerging driver of current and future workplace illness, injury and death. For example, in a detailed case study of the hazardous and heat exposed agricultural sector, in which an estimated 1.3 billion workers and almost half the world's labour force is employed, it is silent on the problem of climate change. Similar to the emphasis in the scholarly literature, the ILO has chiefly focussed on the question of green jobs and just transitions (ILO, n.d.).

Second, the Platform outlines decent work objectives and targets in relation to SDG 13 *Climate Action*, but frames this in terms of 'green jobs' and the 'future of work'. While these speak broadly about shifts and challenges to objectives around improving the world of work, they do not specifically address WHS (other than a nod to supporting adaptation to the effects of climate change). The Platform's principles are guided by the 2013 General Conference 'Resolution concerning sustainable development, decent work and green jobs' (ILO, 2013), and the related 2015 'Guidelines for a just transition towards environmentally sustainable economies and societies for all' (ILO, 2015). In this context WHS is largely conceived narrowly, pertaining to ensuring that new environmentally sustainable jobs are safe, that workers receive appropriate training, and that there is effective oversight to ensure compliance. Governments are simply urged by the Guidelines to 'conduct assessments of increased or new [WHS] risks resulting from climate change' and 'identify adequate prevention and protection measures' (ILO, 2015: 15).

Third, while the Platform mentions the poverty implications of WHS at a broad level, it fails to directly consider the close alignment between SDG 1 *No Poverty*, SDG 3 of *Good Health*, and SDG 8 *Decent Work and Economic Growth* in relation to work safety and climate change. This is an obvious problem in terms of policy making, in order to achieve better outcomes for workers. For over 100 years the ILO has focussed on the end of poverty, having drawn a 'direct link between decent work as a development agenda and poverty eradication' (Somavia, 2003: 2). As such, failing to tackle the poverty implications of the impacts of climate change on WHS is strategic misstep.

Finally, the 2030 SDG agenda around decent work is underpinned by a commitment to market-based solutions and a reliance on traditional notions of development through growth. Frey (2017) has noted that corporations and labour advocates had competing agendas within the SDG process, and this lack of consensus has seen these two elements of SDG 8 married together uncomfortably. Thus, while questions of WHS and human rights feature prominently in the framework, for the International Organisation of Employers:

... the SDGs will support their efforts to encourage the ILO and national governments to focus on policies that create and sustain businesses, and support market solutions and regulatory and tax regimes that are 'sound and fair' from business's point of view. Sound and fair policies include reductions in 'government spending, non-wage labour costs, over-prescriptive standard setting, and over-regulation of employer activity' (Frey, 2017: 1178).

Of course, to deliver on the hope of limiting injuries and excess deaths from climate change in the workplace — which leading health professionals say is in theory possible — it will require *increased* government spending, *higher* wage and non-wage costs for employers, *increased* standard setting to address the new context, and *greater* regulation of employer activity to ensure

compliance. This conflictual nature of capital-labour relations is explored in greater detail in Andreas Bieler's chapter in this volume.

A number of scholars have also acknowledged a larger problem in how the SDGs have been conceived of and operationalised: the 2030 goals generally fail to account for the dynamics of capitalism that have directly led to indecent work, environmental damage and climate change. Bianchi and de Man (2021: 354) argue that the framework fails to understand 'capitalism as a historically specific, dynamic and contradictory mode of production driven by the pursuit of profit and the accumulation of capital which further intensifies the competitive dynamics of capitalist growth'. In the context of WHS and climate change, the profit motive and the discipline of competition between capitalists in the market result in employers taking risks with workers' health and lives. While at a policy level often all parties in workplaces are presumed to have a shared agenda around workplace safety, in practice the pressures of accumulation — and the relative lack of power of workers in most sectors and countries — deliver something quite different. Kreinin and Aigner (2022: 302) go so far to argue that SDG 8 'undermines social foundations and biophysical boundaries, and thus inhibits society's ability to achieve the other SDGs and avoid catastrophic environmental crises'. For them, 'the inclusion of economic growth and the focus on increasing employment both lead to unsustainable and unjust outcomes' with SDG 8, and are ultimately 'part of a discourse of climate delay' (Krein in and Aigner, 2022: 302).

It is important to note also that the SDG framework — and the decent work objectives in particular — fail to adequately deal with the problem of care labour, most of which is performed by women and is unpaid. SDG 8 'suffers from a dual disconnect: it relies on GDP which, preoccupies itself with tangible 'outputs', and in so doing, ignores the vital contributions of social reproductive work performed largely by women' (Rai et al., 2019: 376). In relation to the increasing WHS illness and injury caused by climate change, this means an increasing reliance on unpaid social reproduction to offset the burden. As Goldblatt and Rai (2018: 677) argue of WHS and social reproduction in relation to silicosis disease, 'the restructuring of states and markets is leading to a situation where the subsidy provided by social reproduction is being increasingly relied upon to fill the gaps in the state provision of welfare'. Without serious intervention on this front, the care responsibilities of the increasing WHS problem of climate change will follow established patterns and further burden women. Alessandra Mezzandri explores the issue of social reproductive labour in more detail elsewhere in this volume.

The ILO acknowledges that the industrial setting 'is not a closed system isolated from the natural environment', and that WHS 'risks that give rise to a deterioration in the working environment are also among the main causes of the deterioration in the natural environment and vice versa' (ILO, 2019a: 42). That said, the United Nations and the ILO have a segmented approach to WHS in the context of climate change, as operationalised through the SDG framework and the DW4SD Platform. The framework underplays how climate change is reshaping working life in terms of WHS, and how it is making work and livelihoods more precarious. The SDGs fail to account for the significant risks to workers health and safety and, as a result, fails to operationalise adequate action. Related to this, the project risks failing to account for the growing WHS burden on hospital systems and on those providing unpaid care work to fill in care gaps — most particularly in the developing world where there are fewer social welfare provisions, but also in highly privatised health systems where the cost of care limits access. In sum, the SDG framing and action agenda fails to account the ways in which capitalist markets, social relations and social reproduction have themselves driven indecent work, driven climate change, and placed the burden of WHS onto individuals and their families.

## Climate precarity

One way in which researchers have begun to think about the impacts of the climate crisis on workers' wellbeing is through the notion of 'climate precarity'. Climate conditions make, or are likely to make, all labour more precarious (Natarajan and Parsons, 2021; Newman and Humphrys, 2020). Ideas of labour precarity have been in use since the 1950s, to describe those living in a state of material precariousness in relation to work, income and wellbeing. More recently Guy Standing (2019) has popularised the idea there is an emerging precarious class, distinct from the traditional working class. Natarajan and colleagues (2019: 899; see also 2021) developed an approach to climate precarity as a means of 'drawing on the conceptual insights of precarity as both subjective and objective to better understand the vulnerability that climate change poses from a structural perspective across space'. Newman and I developed our approach and conceptualisation of climate precarity in parallel and connection to these approaches but emphasise also how labour exploitation and 'resource' appropriation are internally related in processes of climate change (Newman and Humphrys, 2020). The concept is also cognisant of the differentiated experience of labour in climate adaptation, as a deeply political process shaped by class, gender, race, migration status, and the role and level of autonomy of an individual in the workforce.

As Pearse and Bryant (2022: 5) argue in relation to energy capital, there is also a need to 'think through the internal relations of exploitation *and* appropriation' in relation to how the economy is being reorganised in the era of climate change. In this sense, labour precariousness is not simply defined in terms of worker contingency and insecurity but is also internally related to the naturalised realms of socio-ecological reproduction that support accumulation. Conceptions of climate precarity can be usefully deployed in analysing the climate-changed workplace, and specifically to encompass issues of health and safety. Considering economic and biological precarity together may assist us to 'explore how growing economic insecurity and environmental destruction are effecting working people and peasant farmers in different parts of the globe and how they are responding to these challenges' (Herod, 2021: xvi). In doing so, this may assist in developing a truly labour-centred approach to climate risk in regard to WHS.

Alongside this, we need a radical reimagining of the notion of adaptation to climate change, which at its core is focussed on maintaining the status quo (Natarajan and Parsons, 2021: 1). The almost universal focus on vulnerability in research and policy efforts seeking to address the impacts of climate change in relation to WHS, are more often than not deployed with 'little understanding of how vulnerability is forged through wider systems of power' (Natarajan and Parsons, 2021: 6). Adaptation is of course already taking place, and what workers do — how labour adapts to climate change — in turn alters the political economy in which these shifts take place. Thus, climate precarity needs go beyond describing the circumstances of its object, the worker. Rather, climate precarity can help us to understand workers as subjects within climate impacted sectors and workplaces. With the problem of the OHS impacts of climate change we also have an opportunity for labour organising on multiple scales. Bringing together the problems of indecent work and global heating, and a politicisation of adaptation, there is an opportunity for labour to organise on three fronts: in relation to their immediate workplace experiences; in relation to wider OHS risks for workers: and, in an effort to address the broader needs of society to mitigate the impacts of climate change for all.

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