

► Just Transition Policy Brief

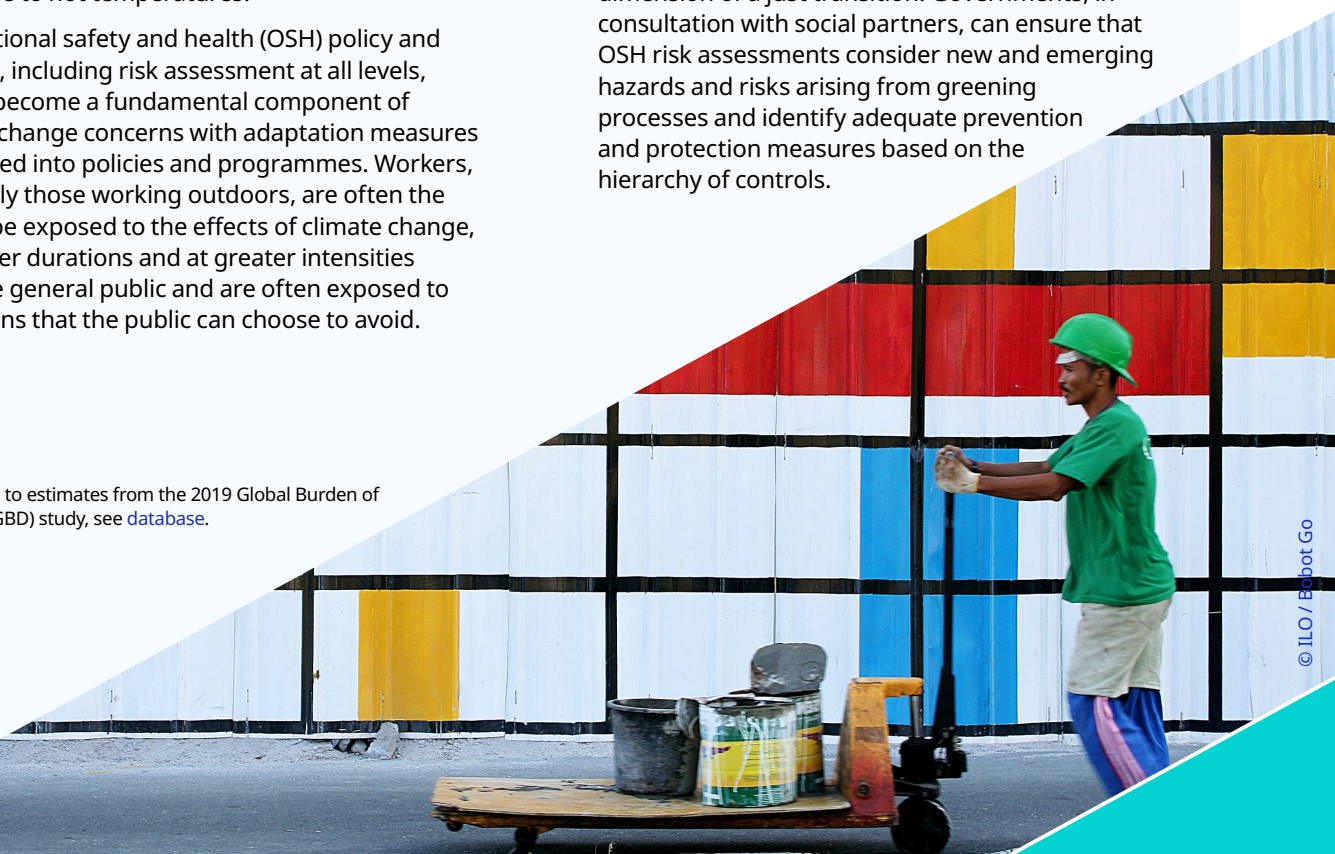
September 2023

Occupational safety and health in a just transition

Key messages

- Climate change poses a multidimensional challenge to occupational safety and health (OSH), and without proper control measures in place, may increase the risk for injury, disease and death for workers due to heat stress, extreme weather events, exposure to hazardous chemicals, air pollution and infectious diseases, among others.
- Numerous health effects on workers have been linked to climate change, including injuries, cancer, cardiovascular disease, respiratory conditions, and effects on their psychosocial health. There has been an increase in the estimated number of deaths among the global working-age population due to exposure to hot temperatures.¹
- Occupational safety and health (OSH) policy and practice, including risk assessment at all levels, should become a fundamental component of climate change concerns with adaptation measures integrated into policies and programmes. Workers, especially those working outdoors, are often the first to be exposed to the effects of climate change, for longer durations and at greater intensities than the general public and are often exposed to conditions that the public can choose to avoid.
- Taking OSH into consideration is critical to a just transition, as risks may arise not only due to environmental changes, but also in new work processes or hazardous practices and materials used in the transition. While work processes that promote greener practices and avoid direct use of harmful chemicals may reduce OSH risks by reducing workers' exposure to hazardous substances, other processes and materials may increase risks.
- All jobs should be decent, safe and healthy. To ensure a safe and healthy environment for all workers, OSH policies represent an integral dimension of a just transition. Governments, in consultation with social partners, can ensure that OSH risk assessments consider new and emerging hazards and risks arising from greening processes and identify adequate prevention and protection measures based on the hierarchy of controls.

¹ According to estimates from the 2019 Global Burden of Disease (GBD) study, see [database](#).





© ILO / Robot Go

Background

The ILO Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All (hereafter the Just Transition Guidelines), adopted by representatives of governments, employers' and workers' organizations in 2015, provide a policy framework and an operational tool to address environmental change in a way that advances social justice and promotes decent work creation.² This policy brief is part of a series of briefs that seek to deepen the technical and policy understanding of the application of the Just Transition Guidelines.

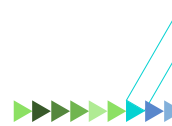
The just transition briefs are intended for use by policymakers and practitioners at all levels to provide practical information and guidance, fostering a common understanding of what is meant by a just transition in specific topic areas and providing recommendations for implementation by countries, international institutions and other actors in academia and civil society. The briefs seek, in particular, to provide guidance on just transition to ILO constituents, including workers' organizations,

employers' organizations, and governments and relevant line ministries.

The briefs cover the following thematic areas: macro-economic and growth policies; industrial and sectoral policies; active labour market policies; enterprise policies; skills development; green works; occupational safety and health; social protection; rights; social dialogue and tripartism; collective bargaining; labour migration and human mobility; indigenous peoples; gender and labour; youth employment; persons with disabilities; persons with HIV/AIDS; and financing a just transition.

This policy brief is intended to present the linkages between just transition and occupational safety and health (OSH), providing stakeholders with information and recommendations for implementation. The broad implementation of just transition across all policy areas and cross-cutting thematic topics requires careful consideration of the guidance provided in the ILO Just Transition Guidelines, taking into account the needs, priorities and circumstances of each country.

² ILO, *Guidelines for a Just Transition Towards Sustainable Economies and Societies for All*, 2015.



1. Introduction: Why is OSH relevant to a just transition?

Climate change is occurring at an accelerated pace and presents an unprecedented danger to human survival. The world is warming faster than ever before, with the global average temperature now 1.1°C higher than at the beginning of last century.³ As global warming intensifies, it can damage infrastructure, disrupt business activity and destroy jobs and livelihoods. It is a direct threat to the growth of gross domestic product, as well as to labour productivity and working conditions.⁴

Climate change may present a significant challenge to occupational safety and health (OSH) if adequate controls are not properly implemented.⁵ Numerous health effects on workers have been linked to climate change, including cancer, cardiovascular disease, respiratory conditions and effects on their psychosocial health.⁶ Specific groups of workers, such as migrant workers and workers in the informal economy, may be particularly vulnerable to health-related impacts of climate change, while poverty may hinder access to social protection.⁷ Workers in the informal economy are especially vulnerable to health risks due to inadequate OSH regulations.

Climate change concerns should become fundamental components of national OSH policy, programmes and practice.⁸ Urgent action is needed to protect the health of workers and the planet, while

maintaining a resilient global economy, employment opportunities and decent work for all. Addressing the challenge of climate change and a path to decent work requires effective employment policies and appropriate climate change adaptation measures which are developed taking into account the fundamental principles of OSH.

A just transition, if managed well, creates decent work opportunities with a gender-sensitive approach, contributes to the elimination of poverty, and ensures just and equitable social inclusion on the way toward greener, resilient and climate-neutral economies and societies, while at the same time acknowledges uneven distribution of costs and impacts associated with climate change. OSH is a core aspect of decent work and sustainable development, through the safeguarding of the health of workers, their families and communities. OSH also benefits employers by contributing to safe, healthy and productive workplaces. Consequently, it is an integral part and enabler of a just transition. This long-term process must proceed as fairly and inclusively as possible for everyone concerned in order to leave no one behind. Hence, a just transition aims to address the social dimension of climate action, while seizing economic opportunities and minimizing and effectively managing arising challenges.

Box 1: The link between a safe and healthy working environment and increased productivity

By providing a safe and healthy work environment, sustainable enterprises prioritize the welfare of their employees, which may lead to increased job satisfaction, employee retention and improved productivity. Moreover, by implementing effective OSH measures such as hazard identification, risk assessment and safety training, enterprises can prevent accidents, injuries and illnesses. This not only protects workers but also contributes to enhanced productivity and efficiency within the enterprise. Another benefit relates to cost reduction. By focusing on OSH, sustainable enterprises can reduce the costs associated with accidents, medical treatment, worker compensation and legal liabilities. This, in turn, can help to improve the financial viability of the enterprise.

Source: ILO, *Conclusions concerning the Promotion of Sustainable Enterprises (International Labour Conference)*, June 2007.

3 IPCC, *Synthesis Report of the IPCC Sixth Assessment Report (AR6)*, 2023.

4 ILO, *Working on a Warmer Planet: The Effect of Heat Stress on Productivity and Decent Work*, 2019.

5 Max Kiefer et al., "Worker Health and Safety and Climate Change in the Americas: Issues and Research Needs", *Rev Panam Salud Publica* 40, No. 3: 192-197 (2016).

6 Haruna M. Moda, Walter Leal Filho and Aprajita Minhas, "Impacts of Climate Change on Outdoor Workers and Their Safety: Some Research Priorities", *International Journal of Environmental Research and Public Health* 16, No. 18 (2019).

7 Max Kiefer et al., "Worker Health and Safety and Climate Change in the Americas".

8 The Just Transition Guidelines provide practical orientation for governments, employers' and workers' organizations on how to design, implement and monitor policies and measures to addressing the labour market implications of climate change in accordance with national circumstances and priorities.



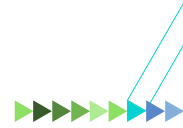
© ILO / Marcel Crozet

Social dialogue among representatives of governments, workers and employers, as well as respect for fundamental principles and rights at work, including freedom of association and collective bargaining are central aspects to a just transition.

Decarbonization happens in various ways, namely through the use of renewable energies, carbon capture and storage, and promotion of a circular economy. Taking OSH into consideration is critical to a just transition, as risks may arise not only due to climatic changes, but also in new work processes or hazardous materials and substances used in the transition. While work processes that promote greener practices and avoid direct use of harmful chemicals may reduce OSH risks by decreasing workers' exposure to hazardous substances with the use of automation and robotics, other processes and materials may potentially increase

risks. For example, workers may be exposed to toxic heavy metals in the life cycle of solar panels specifically as e-waste, or to mercury in energy-efficient compact fluorescent lamps. The increased demand for cobalt, an essential part of lithium-ion batteries, has led to workers from vulnerable populations working in potentially hazardous conditions in which they are exposed to greater OSH risks.

Climate change is an important mega trend changing the future of work, and it may also become a source of deficits in decent work and OSH. As such, in the OSH context, a just transition is about protecting the safety and health of workers in current work environments while also anticipating and protecting workers from emerging hazards involved in transitioning to new work processes and in future jobs in a decarbonized labour market.



2. What are the new and emerging risks for OSH due to climate change?

Climate change is projected to have a significant impact on workers' health, resulting in decreased productivity and economic losses.⁹ Indeed, around 1.2 billion jobs depend directly on healthy ecosystems, and a loss of 80 million jobs due to heat stress is expected by 2030.¹⁰ Workers are often the first to be exposed to the effects of climate change and are affected for longer durations and at greater intensities than the general public.¹¹ Moreover, workers are often exposed to conditions which the general public can choose to avoid. The impact of climate change on workers can be characterized in various ways. Box 2 presents three perspectives that provide a guiding structure.¹²

Box 2: New and emerging hazards related to climate change

1. Intensification of known OSH hazards, such as heat, extreme weather events, solar UV radiation, infectious agents and air pollution.
2. New, unanticipated or unrecognized hazards such as new or emerging infectious agents carried by geographical spread or the proliferation of infectious agents, hosts or vectors.
3. Hazards resulting from human responses to climate change such as practices of decarbonization, circular economy or green chemistry.

Source: Max Kiefer et al., "Worker Health and Safety and Climate Change in the Americas".

Heat exposure and UV radiation

While many workers will be concerned by increased heat exposure and extreme weather events, outdoor workers are most likely to face the most significant impacts. These include workers in agriculture, construction, emergency response, paramedical service, transportation and others who spend much of their working time outdoors. Nevertheless, indoor workers may be also affected by increased temperatures and humidity in working environments with poor ventilation or that lack cooling systems, such as in factories with heat-generating processes.¹³

From a physiological point of view, exposure to heat affects thermoregulation, and the necessary heat balance for the human body can be jeopardized by work conducted under heat stress. Heat stress may reach the limitations of physical capacity and lead to heat-related diseases (such as heat cramps, sunstrokes, heat collapses or heat exhaustion) or even life-threatening heat-strokes. Even at moderate ambient temperatures, a high level of clothing insulation, especially through personal protective equipment (PPE) can lead to disruption of the body's heat balance, which lays in the narrow thermic range of 35.7°C to 37.3°C. The human body can react to slight deviations unconsciously through chemical or physical processes of thermoregulation, or through conscious changes of behaviour or clothing, but severe deviations, meaning core body temperatures above 42°C, can lead to death.¹⁴

Longer periods of severe heat and exposure to solar UV radiation can impact worker health, not only physically but also mentally.¹⁵ The damaging biological effects of UV radiation are particularly significant for the skin and for the eyes.¹⁶

9 Haruna M. Moda, Walter Leal Filho and Aprajita Minhas, "Impacts of Climate Change on Outdoor Workers and their Safety: Some Research Priorities", *International Journal of Environmental Research and Public Health* 16, No. 18 (2019).

10 ILO, *World Employment and Social Outlook 2018: Greening with Jobs*, 2018; *Working on a Warmer Planet*.

11 Max Kiefer et al., "Worker Health and Safety and Climate Change in the Americas".

12 Max Kiefer et al., "Worker Health and Safety and Climate Change in the Americas".

13 Max Kiefer et al., "Worker Health and Safety and Climate Change in the Americas"; ILO, *Working on a Warmer Planet*.

14 BAUA, *Climate Change and Safety at Work* (in German), 2022.

15 BAUA, *Climate Change Meets Occupational Safety and Health*, 2022.

16 BAUA, *Climate Change Meets Occupational Safety and Health*.

Box 3: Health effects for workers

- ▶ Heat-related diseases such as heat collapse, heat exhaustion
- ▶ Dehydration and loss of electrolytes
- ▶ Organ damage such as kidney failure, disruption in stimulus transmission
- ▶ Impairment of mental and physical performance
- ▶ Occupational accidents
- ▶ Acute skin and eye damage
- ▶ Skin cancer
- ▶ Cataracts
- ▶ Burns

Source: BAUA, *Climate Change Meets Occupational Safety and Health*, 2022.

Spread of infectious diseases

Climate change can have significant impacts on ecosystems and their organisms. The Intergovernmental Panel on Climate Change (IPCC) projects that risks from vector-borne diseases, such as malaria or dengue fever, will increase with warming temperatures, including potential shifts in geographic range of these vectors as a result of climate change.¹⁷ This development affects all workers, especially outdoor workers who are at higher risk of contracting vector-borne diseases, from vectors such as mosquitoes, fleas and ticks.

Moreover, infectious diseases may also affect workers via waterborne and foodborne pathogens, such as *Salmonella spp.* when they have direct contact with contaminated water or food. Warmer temperatures, as well as the intensity of droughts and heavy rain may favor such spread. Exposure can occur through contaminated drinking water (from human waste or agricultural runoff), or along the whole food chain, for example, when treating seafood (due to natural microbial hazards or toxins) or unsanitized fresh produce. Waterborne pathogens

have been linked with gastrointestinal impacts, respiratory illness and neurological disorders.¹⁸

Decreased air quality

Decent air quality is a critical component of a health and safe working environment. However, air quality is affected by climate change in various ways, including allergen production, regional increase of concentration or transmission of infectious agents by dust particles. Additionally, wildfires can increase particulate matter in the air and lead to respiratory effects. Ozone concentrations specifically may trigger acute respiratory symptoms and lead to premature deaths.¹⁹ Higher temperatures and an increase of CO₂ lead, for example, to an increased production of pollen as well as certain environmental toxins (phytochemicals).²⁰

Extreme weather events

Climate change may also lead to an increase in extreme weather events and natural disasters, including torrential rain and flash floods, landslides, avalanches and wildfires. In addition to immediate impacts, emergency workers and others involved in response, rescue, clean-up, and remediation may face exposure to contaminated environments after hazardous substances (such as asbestos) or biological agents have been released. Also, psychological stress can occur for workers during activities in a disaster area.²¹ In times of drought and wildfires, firefighters and other rescue workers may be exposed to elevated levels of particulate matter and face risks from chemicals in fire-fighting foams.²² In consultation with employers', workers' and other organizations, Members should take measures to prevent, mitigate and prepare for crises, which include extreme weather events, taking into account ILO instruments, such as [ILO Recommendation 205](#), which explicitly highlights the application of fundamental principles and rights at work to the health of workers engaged in crisis response.²³

17 IPCC, *Special Report: Global Warming of 1.5°C*, 2018.

18 BAUA, *Climate Change Meets Occupational Safety and Health*.

19 European Environment Agency (EEA), *Healthy Environment, Healthy Lives: How the Environment Influences Health and Well-being in Europe*, 2020.

20 EEA, *Healthy Environment, Healthy Lives*.

21 EEA, *Healthy Environment, Healthy Lives*.

22 Frontiers in Materials, *Firefighters' Exposure to Per-and Polyfluoroalkyl Substances (PFAS) as an Occupational Hazard: A Review*, 2023.

23 ILO, *R205 – Employment and Decent Work for Peace and Resilience Recommendation*, 2017.



© ILO / Marcel Crozet

Psychosocial risks

The various impacts of climate change may not only cause physical risks but may also impact mental health. Potential

threats or preventive measures can lead to stress, depression, burnout, and climate anxiety (worries about the effects of climate change). Excessive heat can lead to sleeping disorders, behavioural

changes and a lowered ability to concentrate. The consequences of climate change, as visible through heat or extreme weather events or job/livelihood loss, can trigger feelings of helplessness or worry, loss of appetite or panic attacks. Damaged infrastructure or buildings can put workers in new or unfamiliar situations which may lead to a traumatic injury or mental stress.

Box 4: What can we learn from the evidence?

In 2019, of an estimated 138,000 individuals¹ of the working age population, some 33,000 women (24 per cent) and 105,000 men (76 per cent) died due to exposure of high temperatures. Most cases were estimated to happen in India (approx. 54,000 cases), Pakistan and China (approx. 9,000 cases each). In 1991, around 58,000 individuals, including 13,000 women, died due to the same risk factor. This represents an increase by 137 per cent, and an increased death rate per 100,000 of the working age population from 2.58 to 4.22. Countries showing the highest rate of death per 100,000 workers were Burkina Faso (18.7), Chad (18.5) and Djibouti (18.4). According to data from the previous 30 years, men of the working age population are more likely to die from exposure to extreme heat than women, with the most affected age group being those 65 years and older.² It is notable that the increase of the ratio of death rate, meaning deaths per 100,000 workers, attributable to exposure to high temperatures is most pronounced in Europe.³

¹ Due to the data gap on workers, estimates are based on individuals of the working age population. ² Estimates from the 2019 *Global Burden of Disease (GBD) study*, see [database](#). ³ 2019 *GBD*.

3. How does a just transition contribute to a safe and healthy working environment?

A just transition to an environmentally and socially sustainable economy refers to a framework that aims to ensure that the transition to a low-carbon economy is just for all workers as well as employers, particularly those in sectors that are negatively impacted by the transition to sustainable development. In both advanced and developing economies, it has the potential to be a new engine of growth that creates decent, green jobs while protecting the environment and aiming for social inclusion and the eradication of poverty. Indeed, a just transition can become a strong driver of job creation, job upgrading and social justice. Job quality may improve by greening enterprises through introducing more productive processes, more energy- and resource-efficient practices, avoiding pollution and managing natural resources in a sustainable manner. In this context, it is important to take enterprises' resources into account, especially for micro, small and medium-sized enterprises.

Greening work practices can improve the safety and health of workers in several ways. Energy efficiency measures can help to reduce worker exposure to heat and noise, and promoting sustainable transportation options, such as public transit, can help to reduce the risks associated with commuting, such as traffic accidents and air pollution exposure. By prioritizing the needs of both workers and employers, a just transition can help to create a safe and healthy working environment. For example, it can provide support for industries that are being phased out, such as coal mining, to promote the transition to new jobs in the clean energy sector. This can reduce the risk of job losses and associated economic hardship, which can negatively impact workers' mental and physical health. In addition, the transition to green chemistry, which involves the design and use of chemical products and processes that are safer for both human health and the environment, can play a crucial role in protecting the safety and health of workers. Traditional chemical manufacturing practices often rely on toxic and hazardous chemicals, which can pose significant risks to workers, their families and the wider community. By prioritizing green



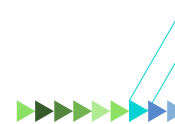
© Image by www.freepik.com

chemistry practices, manufacturers can reduce exposure to harmful chemicals, creating safer and healthier working environments.²⁴ Additionally, a just transition to green chemistry can ensure that workers are not left behind in the shift to more sustainable practices by providing them with training, education and opportunities for new jobs in the emerging green economy.²⁵

Overall, a just transition can help to promote a safe and healthy working environment by supporting workers and employers throughout the transition to a low-carbon economy and ensuring that new jobs in the green economy are safe and healthy. Ultimately, employment that is safe and healthy attracts workers, who are central for the economic transformation.

24 Theo Vos et al., "Global Burden of 369 Diseases and Injuries in 204 Countries and Territories, 1990–2019: a Systematic Analysis for the Global Burden of Disease Study 2019," *Global Health Metrics* 396, No. 10258 (2020); ILO, *Frequently Asked Questions on Just Transition*, 2023.

25 Schulte et al., *Occupational Safety and Health, Green Chemistry, and Sustainability: a Review of Areas of Convergence*, 2013.



4. How does a just transition potentially challenge workers' safety and health?

A just transition aims to green the economy while creating decent work that is safe and healthy. However, transitioning away from coal to solar, wind, hydropower and other sustainable energies may pose its own set of emerging occupational risks for workers. Rapid technological innovation in the workplace can lead to an OSH landscape characterized by new processes and constantly changing materials, making adapted risk assessments necessary. Workers will require specific and updated training on how to correctly deploy OSH risk reduction controls in their workplace, since previous knowledge on OSH is not necessarily applicable to new technology and working processes. This has created a skills gap in rapidly growing areas like renewable energy sectors, which will need to train workers on the specific new skills required. Moreover, economic and political pressures to accelerate a just transition could also challenge the safety and health of workers due to expectations of a speedy greening process that might possibly overlook workers' experience and skills.²⁶ Workers who design components of sustainable energy infrastructure, as well as iron and steelworkers, machinists, electrical equipment assemblers, construction equipment operators, installation assistants and construction managers, among others, may face particular hazards if control measures are not implemented. These may include accidents in the course of increased high-risk work such as erecting atria, installing green roofs or photo voltaic panels. Workers may also be at risk of exposure to hazardous materials during renovations, including asbestos, hazardous chemicals and dust.

Box 5: The effects of the production and recycling of solar panels on workers

Solar panels are essential for shifting away from fossil fuels and reducing carbon dioxide emissions. However, their production and disposal can be hazardous for workers. While the International Renewable Energy Agency (IRENA) estimates that photovoltaic panel waste volume was around 250,000 tonnes in 2016, the global solar energy systems market is expected to grow annually by 15.7 per cent from 2022 to 2030, potentially resulting in up to 78 million tonnes of waste. Components of solar panels may include lead, cadmium and other toxic chemicals, potentially posing a risk to workers during production, demolition, disposal or recycling. Other hazardous substances, such as cadmium, may be washed off of the panels by rainwater or released during hurricanes, hailstorms, earthquakes or other extreme weather events. This not only affects the local environment, but also endangers workers processing the waste.

Sources: IRENA, *End-of-life management: Solar Photovoltaic Panels*, 2016; Grand View Research, *Solar Energy Systems Market Size, Share & Trends Analysis Report*, 2020.

Box 6: The effects of the extraction and use of cobalt on workers

Cobalt is a mineral used in various industries and products. For instance, lithium-ion batteries that power electric vehicles contain 10 to 20 per cent of cobalt. As the global demand for e-mobility increases, cobalt mining has become more prevalent, but it's often carried out in informal conditions without adequate safety measures. Workers in these contexts may be exposed to high levels of dust, toxic gases and other hazards, which can lead to respiratory illnesses, skin irritation and other health problems. Cobalt itself is classified a hazardous substance since it can be harmful for the eyes, skin, heart and lungs, and may cause cancer.

Source: CDC, *Cobalt*, 2023.

26 EU-OSHA, *Workers' Safety and Health in Green Jobs*, 2023.



© ILO / Apex Image

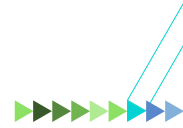
5. Which ILO instruments on occupational safety and health are relevant in the context of a just transition?

The ILO provides several international standards which offer guidance for decent work in the course of a just transition, including adaptation measures to climate change. See box 7.

To complement existing international standards, the ILO has developed several codes of practice that address heat stress, these include Safety and health in ports (2018), Ambient factors in the workplace (2001), Safety and health in forestry (1998), Safety and health in construction (1992), Safety and health in opencast mines (1991), and Safety and health in shipbuilding and ship repair (1974).²⁷ The range of

international labour standards relevant to adaptation measures for addressing climate change is not limited to those that contain specific OSH measures related to that area. For example, workers unable to work due to heat stress are entitled to injury benefits as prescribed by the Employment injury Benefits Convention, 1964 (No. 121). In addition, the Occupational Health Services Recommendation, 1985 (No. 171) implies that “[e]ach Member should develop progressively occupational health services for all workers [...]. The provision made should be adequate and appropriate to specific health risks of the undertakings”.

²⁷ ILO, *Codes of Practice*, n.d.

**Box 7: ILO instruments on OSH in a just transition**

- ▶ **Occupational Safety and Health Convention, 1981 (No. 155)** and its accompanying **Recommendation (No. 164)**: C155 states that “[e]ach Member shall, in the light of national conditions and practice, and in consultation with the most representative organizations of employers and workers, formulate, implement and periodically review a coherent national policy on occupational safety, occupational health and the working environment” to “prevent accidents and injury to health arising out of, linked with, or occurring in the course of work”. R164 specifies that a national OSH policy should include measures dealing with “temperatures, humidity and movement of air in the workplace”.
- ▶ **Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187)** states that “[e]ach Member which ratifies this Convention shall promote continuous improvement of occupational safety and health to prevent occupational injuries, diseases and deaths, by the development, in consultation with the most representative organizations of employers and workers, of a national policy, national system and national programme”.
- ▶ **Working Environment (Air Pollution, Noise and Vibration) Convention, 1977 (No. 148)** and its accompanying **Recommendation (No. 156)**: “National laws or regulations shall prescribe that measures be taken for the prevention and control of, and protection against, occupational hazards in the working environment due to air pollution”.
- ▶ **Chemicals Convention, 1990 (No. 170)** and its accompanying **Recommendation (No. 177)**: “[T]he term use of chemicals at work means any work activity which may expose a worker to a chemical” this includes e.g. the production, handling, storage, or transport of chemicals.
- ▶ **List of Occupational Diseases Recommendation, 2002 (No. 194)**: “A national list of occupational diseases for the purpose of prevention, recording, notification and, if applicable, compensation should be established by the competent authority”. This list shall amongst others include diseases caused by physical agents such as caused by optical (e.g. ultraviolet) radiations, or exposure to extreme temperatures.
- ▶ **Hygiene (Commerce and Office) Recommendation, 1964 (No. 120)** refers to ventilation, lighting, or temperature.
- ▶ **Protection of Workers’ Health Recommendation, 1953 (No. 97)**: “National laws or regulations should provide for methods of preventing, reducing or eliminating risks to health in places of employment, including methods which may be applied, as necessary and appropriate, in connection with special risks of injury to health”, as well as “to ensure that general conditions prevailing in places of employment are such as to provide adequate protection to health of the workers concerned”.
- ▶ **Workers’ Housing Recommendation, 1961 (No. 115)**: “The housing standards [...] should relate in particular to [...] appropriate protection against heat, cold, damp, noise, fire, and disease-carrying insects, and, in particular, insects”.
- ▶ **Employment and Decent Work for Peace and Resilience Recommendation, 2017 (No. 205)**: “This Recommendation provides guidance to Members on the measures to be taken to generate employment and decent work for the purpose of prevention, recovery, peace and resilience with respect to crisis situations arising from conflicts and disasters”.



© ILO / Marcel Crozet

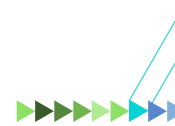
6. Country examples of actions taken to address OSH in the face of climate change

A review of global OSH policies in relation to climate change reveals that most national policies having been developed in European countries.²⁸ Around 70 per cent of identified responses have been published during the past five years, indicating the increasing importance of the issue. Around half of the national responses provide practical tools, such as guides, action plans or risk analysis, while the other half are in the form of strategies. Various entities have published responses, among them ministries of labour, ministries of the environment, ministries of health, national OSH institutes or similar bodies. More than half of the reviewed policies focus on heat stress in particular.

Australia

The Australian Work Health and Safety Strategy 2023–2033, which has been developed in consultation with employers' and workers' organizations, sets the agenda to respond to OSH challenges following the vision of enabling safe and healthy work for all, while reducing work fatalities, injuries and illnesses. Climate-related risks have been identified as emerging challenges, acknowledging the danger of heat, flooding and extreme weather events for workers. Moreover, new technologies and industries in decarbonization and the circular economy which create new roles are addressed in the same priority area. By 2033, together with social partners and other stakeholders, Safe Work Australia aims to find effective responses to structural

28 See [EU OSH Strategic framework 2021–2027](#), which emphasises the need to consider the impacts of climate change on the workplace.



workforce factors and the impact of climate change.²⁹ In response to hot temperatures, Safe Work Australia has developed guidance material on managing the risks of working in heat.³⁰ This includes the consideration of air temperature, air flow, humidity, radiant heat sources, work requirements, the condition of a worker and the type of workplace.

Qatar

A Ministerial Decision announced in May 2021 introduced an expansion of summertime working hours during which outdoor work is prohibited. Under the new rules, workers cannot work outside between 10:00 a.m. to 3:30 p.m. from 1 June to 15 September. In addition, regardless of the time, all work must stop if the wet-bulb globe temperature (WBGT) rises beyond 32.1°C in a particular workplace. The WBGT index takes into consideration ambient temperature, humidity, solar UV radiation and wind speed. The new measures also introduce the necessity for health checks for workers once a year, as well as obligatory risk assessments for enterprises to mitigate heat stress in collaboration with the workers. Moreover, the national provision also includes the necessity for employers to provide training on heat stress before the hot season starts. Free and cool drinking water should be provided and workers must have access to secure rest areas which provide shade, shelter from solar radiation and protection from high temperatures.³¹

Uruguay

After the death of a rural worker who was struck by lightning, Uruguay approved Decree 38/022 on work in adverse weather conditions in rural areas. The norm acknowledges the need for greater protection of workers' health due to diverse natural events such as winds, thunderstorms or heat waves which may occur more often due to climate change. It obliges employers in rural sectors to suspend work when there are risks to safety and health derived from rain, wind, electrical storms and other extreme weather events. In line with Convention No. 155 (Art. 13), workers possess the right to remove themselves from dangerous situations according to Decree 38/022. In addition, the Decree includes a general protocol with the minimum measures to be adopted in workplaces based on meteorological phenomena, characteristics of the establishment, place and experience already available based on the occurrence of extreme weather events. The protocol entails various recommendations, such as on how to behave in the event of an electrical storm so as to avoid work near trees or antennas and power lines or to avoid the use and maintenance of metallic tools and equipment. Moreover, in the event of flooding of rivers, ravines, canals and lagoons due to heavy rain, life jackets must be worn in case crossing of watercourses is necessary.³²

29 Safe Work Australia, *Australian Work Health and Safety Strategy 2023–2033*, 2023.

30 Safe Work Australia, *Managing the Risks of Working in Heat: Guidance Material*, 2021.

31 ILO, "New Legislation in Qatar Provides Greater Protection to Workers from Heat Stress", 2021.

32 Ministry of Labour and Social Security of Uruguay, "Decreto 38/022 Se establece un protocolo de actuación para trabajadores rurales para cuando ocurren fenómenos meteorológicos adversos", 2022.

7. Conclusions and key take-aways

The impacts of climate change pose significant challenges to the safety and health of workers in potentially all types of jobs, including green jobs. It is essential that all jobs are decent, safe and healthy and that OSH policies are a core component of a just transition.

Resilient and responsive OSH management systems, at both the national and enterprise level, will be essential for protecting workers across all work sectors. In this context, particular attention should be paid to small and medium-sized enterprises and those in the informal economy. As outlined in the ILO report on improving Safety and Health in micro-small and medium-sized enterprises,³³ OSH legislation will need to be specifically tailored for the size of businesses. OSH policies will need to be implemented and, when necessary, new standards should be developed by tripartite constituents and adopted by the ILC. Employers and workers should

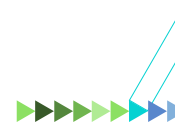
be trained on how to apply OSH standards, and labour inspectorates must have the capacity to monitor compliance. OSH policies and programmes should be coordinated among agencies and the competent authorities to ensure policy coherence and should be continuously improved in the light of new challenges. To ensure a safe and healthy environment for workers and employers, OSH policies must consider any new risks arising from greening processes and identify appropriate prevention and protection measures based on the principles of risk assessment and the hierarchy of controls. Training programmes for employers and workers in green jobs, as well as vocational training or continuous training, will be essential in order to adequately address workers' safety and health.

At the 111th session of the ILO's International Labour Conference in June 2023, the Resolution concerning a just transition towards environmentally



© ILO / Marcel Crozet

33 ILO, *Improving Safety and Health in Micro-, Small and Medium-Sized Enterprises: An Overview of Initiatives and Delivery Mechanisms*, 2020.



sustainable economies and societies for all³⁴ called on governments, employers' and workers' organizations to formulate, implement, monitor, adapt and periodically review national policies for OSH which prioritize a preventative approach; identify and manage new and emerging risks from climate change; invest in occupational safety and health capacity development and training, also in

the informal economy; and urgently implement OSH measures for all workers impacted by climate-related risks and extreme weather events. In addition, the resolution noted the consideration for convening a tripartite meeting on OSH in extreme weather events and changing weather patterns, the format of which is to be decided by the Governing Body.

Box 8: Collaborative action to be taken by governments and social partners

(to be implemented in line with C155 – Occupational Safety and Health Convention, 1981 (No. 155) and C187 – Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187))

- ▶ **Awareness-raising activities:** Enhance communication and awareness raising on the potential of new OSH challenges and benefits in connection with the transition to a green economy and new technologies on all societal and international levels.
- ▶ **Mainstreaming activities:** OSH considerations shall be an integral part of climate-related structural adjustment policies and plans of adaptation or mitigation measures, especially since they may change occupational risks.
- ▶ **Greening OSH policies:** Similar to mainstreaming OSH in climate-related structural adjustments, dimensions of mitigation and adaptation to climate change need to be considered in OSH policies.
- ▶ **Skills-building activities:** Promote activities that enhance workers' and enterprises' abilities to understand and manage OSH risks skills development and training.
- ▶ **Inclusion through social dialogue:** Advocate for mechanisms of participation, inclusion and social dialogue among governments, workers and employers' organizations throughout policy-making processes at all levels according to the [ILO Guidelines of 2015 for a Just Transition towards environmentally sustainable economies and societies for all](#). Participation and consideration of the formal and informal economy (including care work), migrant workers, indigenous people, disabled, women, children and youth are imperative when developing policies.
- ▶ **Risk management activities:** Promote research and development into new risks and how to manage them, as well as opportunities. At the workplace level, practical prevention measures based on risk assessment and the concepts of the hierarchy of controls should be implemented. To guarantee that green employment is safe, policies and programmes under national occupational safety and health systems should be regularly modified in light of emerging OSH challenges. In order to assure compliance, the labour inspectorate must have sufficient capacity.
- ▶ **Social dialogue:** Social dialogue between governments, workers' and employers' organizations as well as with stakeholders such as worker communities, international organizations, NGOs, academia, and civil society helps to undertake sustainable, appropriate and consensus-oriented action.

³⁴ ILO, Resolution concerning a just transition towards environmentally sustainable economies and societies for all, 2023.

Box 9: Aspects of national OSH policy action, in consultation with social partners¹

- ▶ Conduct assessments of emerging or new OSH risks resulting from climate change;
- ▶ Identify adequate prevention and protection measures;
- ▶ Improve, adapt or develop and create awareness of OSH standards for technologies, work processes and new materials related to the transition;
- ▶ Adopt and implement applicable OSH standards;
- ▶ Work towards greater OSH policy coherence and cooperation among occupational health and environmental agencies or other competent institutions with regard to regulation and enforcement;
- ▶ Formulate, implement and periodically review national policies concerning the protection of workers;
- ▶ Promote the use of appropriate prevention, protection and safety processes and strengthen government capacity to enforce laws at national and subnational level;
- ▶ Incentivize companies and support technical assistance to conduct research to better understand the range of OSH risks across the life cycle of products, new technologies and jobs, and use this knowledge to improve prevention and safety in the workplace;
- ▶ Establish, promote or provide for the setting up of joint workers' and employers' OSH committees in the workplace;
- ▶ Regulate and incentivize companies to reduce, minimize, and, where possible, eliminate hazardous materials across the supply chain of products and production processes. Assess and define appropriate legislation to ensure that companies take appropriate steps to mitigate adverse impacts on health and safety and, where applicable, the wider environment, throughout the life cycle of products and processes.

¹ See ILO, *Guidelines on Occupational Safety and Health Management Systems (ILO-OSH 2001)*, 2001.

Acknowledgements

This brief was prepared by Halshka Graczyk (LABADMIN/OSH) and Andreas Hoibl (LABADMIN/OSH) under the coordination of Manal Azzi (LABADMIN/OSH). The brief benefited from review and input from Francisco Santos O'Connor (LABADMIN/OSH), Bálint Náfrádi (LABADMIN/OSH), Ursula Kulke (ACTRAV), Victor Hugo Ricco (ACTRAV), Matias Espinosa (ACTEMP), Jose Luis Viveros Añorve (ACTEMP), Marek Harsdorff (AP/JUSTTRANSITION). Special thanks to Moustapha Kamal Gueye (AP/JUSTTRANSITION) and Monica Castillo (GREEN) for their oversight and coordination.

Contact details

International Labour Organization

Route des Morillons 4
CH-1211 Geneva 22
Switzerland

Labour Administration, Labour Inspection and Occupational Safety and Health Branch
(LABADMIN/OSH): labadminosh@ilo.org

Green Jobs Programme: greenjobs@ilo.org

DOI: <https://doi.org/10.54394/TYAM5297>