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Mitigating the risks of climate change on the sound management of chemicals in the world of work

Session objectives

At the end of the session, you will be able to:

1. Understand the difference between climate change mitigation and adaptation and how they related to the world of work.
2. Identify the ILO international labour standards related to chemical safety and climate change.
3. Suggest other policy level actions.
4. Describe ILO initiatives for decent work in a changing climate.
5. Recognize the key multilateral environmental agreements on climate change and chemical safety.
6. Suggest priority actions at the workplace level.
7. Know the rights and responsibilities of governments, employers and workers.
8. Show how climate change can create jobs and protect workers and income.

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Introduction to priority actions

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Introduction

Climate change-related events are already having a profound impact on planetary health, human health and the work of work.

- Significant **interlinkages** exist between the world of work and the environment.
- Climate change must be **integrated into policy and practice at all levels**, rather than being a stand alone concern.
- Addressing harmful chemical exposures in the workplace through **effective occupational safety and health (OSH)** measures are a top priority for advancing **climate change agendas**.
- **Employment policies** and appropriate **climate change adaptation and mitigation** measures are needed as a matter of urgency.

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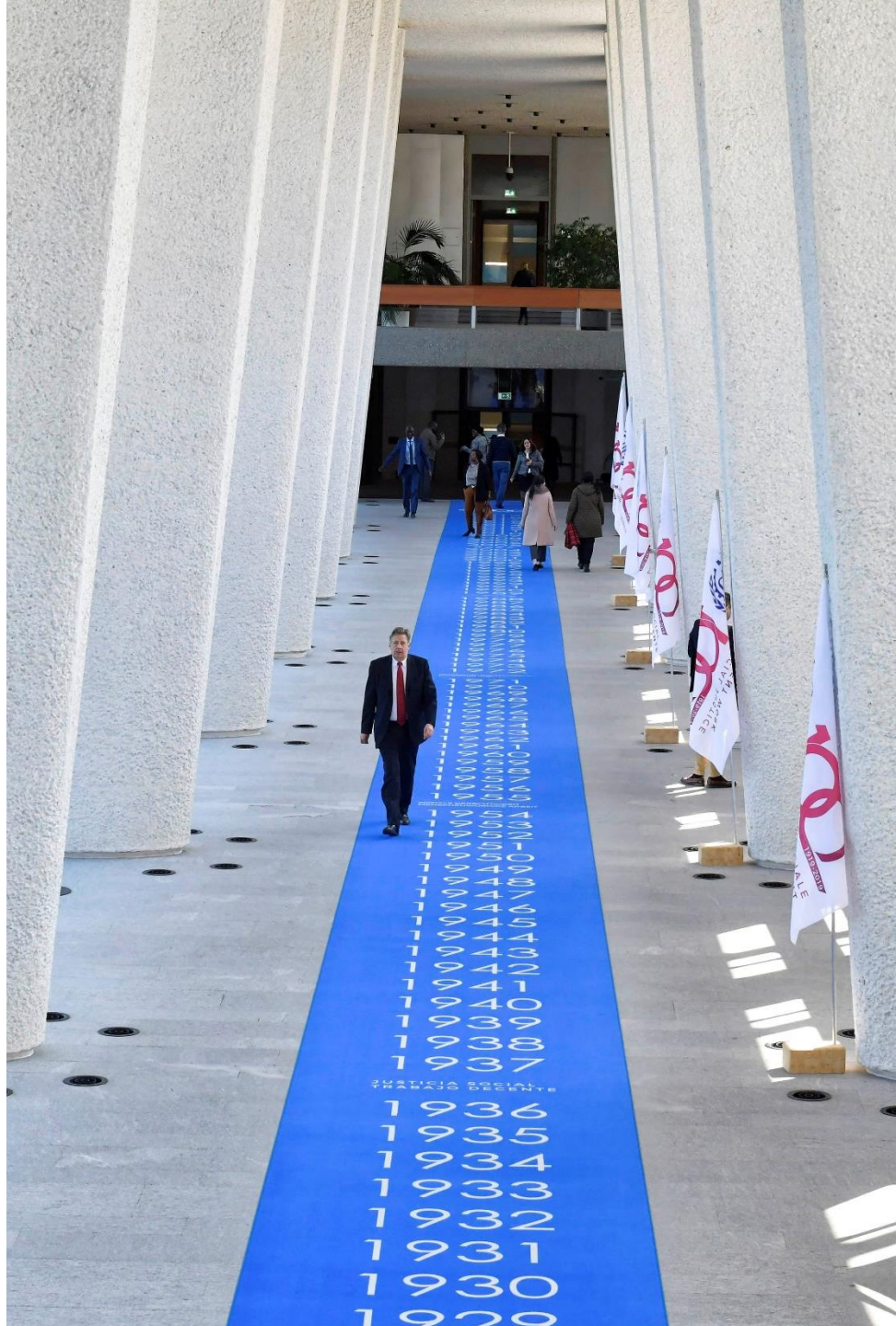
Types of priority actions

Central goal is to standardize and formalize chemical safety in relation to climate change.

- ILO international labour standards.
- Other ILO green initiatives.
- Multilateral environmental agreements.
- Workplace level priority actions.
- Rights and responsibilities of stakeholders.



An integrated approach is needed

Climate change brings new risks to the health and safety of workers.

- National programmes on occupational safety and health (OSH) must now account for these **changing world of work issues**.
- An **integrated OSH systems approach** is needed at national and workplace levels, with **climate change considered at all stages of occupational risk assessments**.
- Evidence must be matched to policy initiatives that consider these **new and emerging risks**.

Climate change adaptation and mitigation

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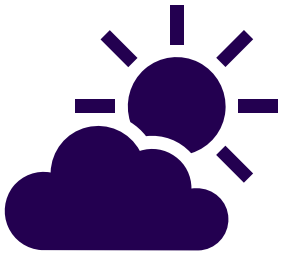
Question:

Can you explain the difference between climate change mitigation and climate change adaptation?



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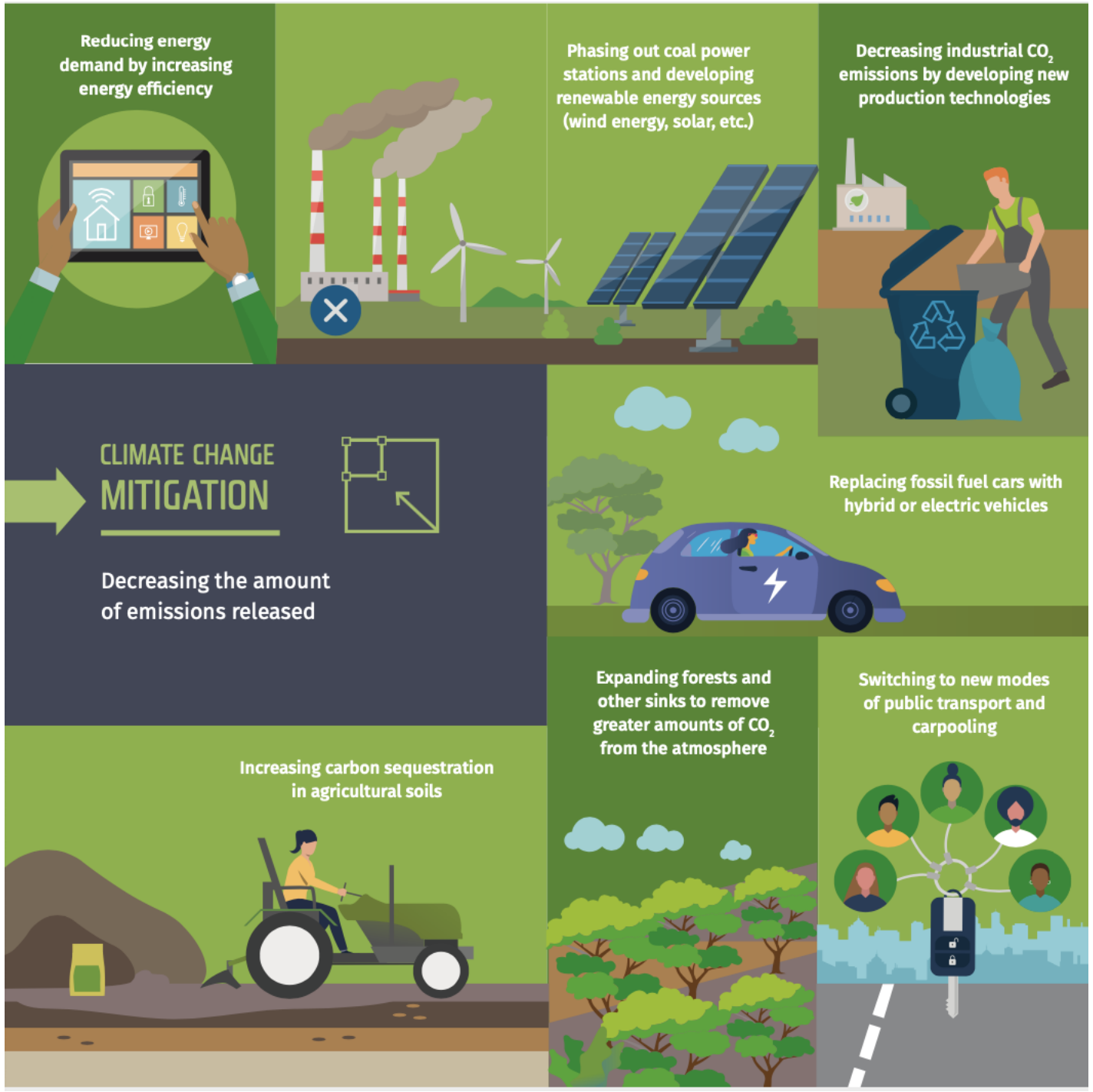

Source: ETUC 2020

Both adaptation and mitigation are needed

Mitigation and adaptation efforts are required to limit the effects and impacts of climate change.

- Different countries have different levels of **public, financial, institutional and technological capabilities** to deal with climate change.
- Climate change mitigation is key to protecting the **future labour force** from climate-related risks
- Mitigation measures can **limit the effects of climate change** and **reduce future adaptation costs**, while bringing **net employment benefits**.
- However, despite mitigation efforts, climate change-related events are expected to continue to take place.
- The **implementation of adaptation measures** is therefore a matter of **genuine urgency**.

Mitigation

- Mitigation is any “**human intervention to reduce the sources or enhance the sinks of greenhouse gases**” *(IPCC 2014)*.
- Mitigation can be achieved through a variety of means, including **decarbonization of the energy sector**, **electrification of transport**, **promotion of sustainable agriculture**, **reforestation and afforestation**, and **investment in carbon capture and storage technologies**.
- By reducing the emission and accumulation of GHGs, mitigation measures can **slow down anthropogenic climate change** and, consequently, reduce the risk of occupational climate-change related hazards in the future.
- Mitigation also lessens the need for adaptation measures.
- Delayed action or taking no action at all would lead to **catastrophic impacts** *(IPCC 2014)*.

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Adaptation

- Refers to **anticipating the negative effects of environmental degradation** and taking suitable action to **prevent or minimize the damage** these effects can cause.
- **Investing in adaptation** and **developing climate-resilient infrastructure** are prerequisites for **economic growth**, **job creation** and advancing towards **sustainable development**.
- Adaptation to climate change can lead to **job creation** and **prevent the loss of jobs**, as well as bringing other employment benefits.
- It is important to bear this in mind and to pursue **complementary policies** in order to **maximize the positive employment** impact of adaptation strategies.

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Different types of adaptation measures

- **Protection and restoration of natural infrastructure** e.g. conservation activities and afforestation programmes to restore certain adaptation-relevant ecosystem services.
- **Projects focusing on built infrastructure** e.g. building irrigation infrastructure to limit the effect of changing rain patterns on crops, building flood defences and adapting buildings to future climatic conditions and extreme weather events.
- **Capacity-building activities** e.g. skills development programmes can help displaced workers to move on to sectors where there is employment growth.
- **Financial support** e.g. social protection mechanisms to come to the aid of people affected by natural disasters or climate events.

ILO international labour standards related to chemical safety and climate change

Ratify and implement ILO International Standards on OSH

- Climate change will require governments, businesses and workers to prepare for, adapt to, and manage the risks of weather hazards.
- Their ability to do so depends on **regulatory frameworks**, such as **international labour standards**.
- A national legal framework that **integrates environmental with labour-related objectives** can go a long way towards ensuring that climate change adaptation and mitigation measures are also employment friendly.
- These standards **provide tools** for managing the risks associated with climate change and for ensuring **decent working conditions**.
- They provide the **legal foundation** for addressing **rising inequality** and the **increasing vulnerability of workers and enterprises** in the face of climate change, as well as for **enhancing adaptive capacity** of communities.

Categories of key conventions

The ILO has over 40 instruments related to OSH:

- **Occupational safety and health conventions**
  - Promotional Framework for Occupational Safety and Health Convention (No. 187) and Recommendation (No. 197), 2006.
  - Occupational Health Services Convention (No. 161), and Recommendation (No. 171), 1985.
  - Occupational Safety and Health Convention (No. 155) and Recommendation (No. 164), 1981, and its Protocol of 2002.
- **Chemical safety conventions**
  - Chemicals Convention (No. 170) and Recommendation (No. 177), 1990.
  - Major Industrial Accidents Convention (No. 174) and Recommendation (No. 181), 1993.

Occupational Safety and Health Convention (No. 155) and Recommendation (No. 164), 1981, and its Protocol of 2002

Applies to all hazards to which workers are exposed and prescribes measures to be taken by governments, employers and workers to prevent hazards to mitigate consequences: Ratified by 69 states.

- Aims to prevent **accidents** and **injury to health** arising out of, linked with or occurring in the course of work, for example due to **hazardous chemical exposure** or **climate change hazards**.
- National OSH policy on design, testing, choice, substitution, installation, arrangement, usage and maintenance, including chemical substances.
- Authorities must **determine all hazardous substances**, exposure to which is prohibited, limited or made subject to authorisation.
- Persons who design, manufacture, import, provide or transfer chemical substances for occupational use must **ensure that these substances do not entail a risk to health and safety**
- Accidents and injury to health should be prevented by minimizing causes of hazards in the working environment, including those related to **temperature, humidity and movement of air** in the workplace.

Promotional Framework for Occupational Safety and Health Convention (No. 187) and Recommendation (No. 197), 2006

Aims to promote continuous improvements to OSH through the development of a national policy, national system and national programme: Ratified by 57 states.

- Formulate a national policy to promote a **safe and health working environment**.
- Develop a national preventative safety and health culture that includes **information**, **consultation** and **training**.
- A national system should include **laws and regulations**, **an authoritative body**, **mechanisms for ensuring compliance** and the **promotion of cooperation**. It may also include advisory OSH services, OSH training, research and the collection and analysis of data.
- A national programme should promote the development of a national OSH culture and the elimination of hazards and risks, whilst reviewing objectives and targets.

Occupational Health Services Convention (No. 161), and Recommendation (No. 171), 1985.

Outlines the functions of occupational health services with regard to protecting workers from health hazards in the workplace: Ratified by 35 states.

Functions include:

- **Identification** and assessment of the risks from health hazards.
- **Surveillance** of the working environment and working practices.
- Advice on planning and organisation of work, including **substances used in work**.
- **Surveillance of workers' health**.
- Contribution to measures of **vocational rehabilitation**.
- Collaboration in providing **information**, **training** and **education**.
- Participation in **analysis** of occupational accidents and occupational diseases.

Chemicals Convention (No. 170) and Recommendation (No. 177), 1990.

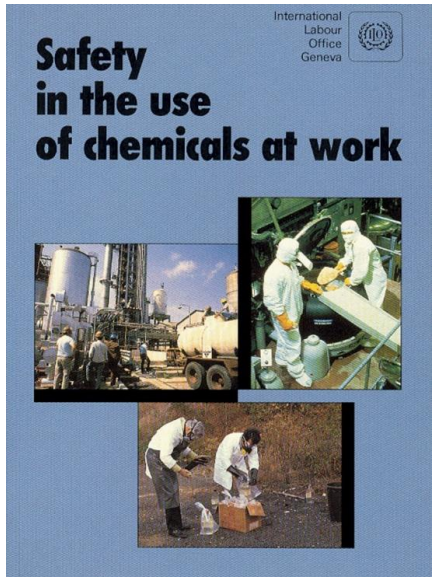
The main ILO instruments dealing with chemicals: Ratified by 22 member states.

Adopted in 1990 and among the first international instruments dealing with all major chemical hazards in a comprehensive manner.

- Targeted and specific instrument.
- Provides the basis for the sound management of **all types of chemicals.**
- Convention No.170 served as the **basis for the negotiation of the Rotterdam. Convention**, which was adopted in 1998.
- Convention No.170 has also been a **basis for the development of GHS.**
- Complimented by the ILO Code of Practice on the Safety and use of chemicals at work.

Code of Practice: Safety in the use of chemicals at work

- Classification systems for chemicals
- Labelling and marking of chemicals
- Safety Data Sheets (SDS)



- Duties of employers:
  - Design and installation of workspaces
  - Work systems and practices
  - Personal protection
  - Information and training
  - Maintenance of engineering control measures
  - Monitoring in the workplace
  - Medical and health surveillance
  - Emergency procedures and first aid
  - Investigation and reporting of accidents, occupational diseases and other incidents

Major Industrial Accidents Convention (No. 174) and Recommendation (No. 181), 1993.

Provide for precautionary measures to avoid or minimize the consequences of industrial disasters due to chemicals and other hazardous substances: Ratified by 18 member states.

- Provides:
  - A systematic and comprehensive model framework for the protection of workers, the public and the environment against **MIA involving hazardous substances**.
  - The **mitigation of the consequences of such accidents** where they do occur.
- Includes:
  - **Identification of major hazard installations** and their control
  - **Responsibilities** of the employers, competent authorities and the rights and responsibilities of workers.
  - It also defines the responsibilities of exporting States.
- Recommendation (No. 181) contains further provisions, for example, the international transfer and the rapid compensation of victims of accidents.

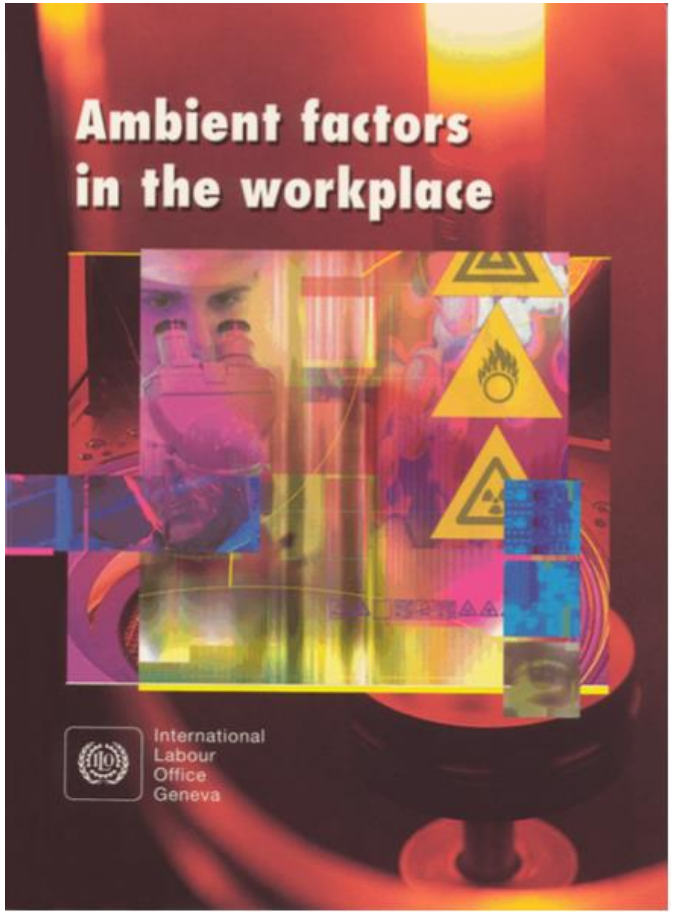
Additional international labour standards related to chemicals management

- Asbestos Convention (No. 162) and Recommendation (No. 172), 1986.
- Working Environment (Air Pollution, Noise and Vibration) Convention (No. 148) and Recommendation (No. 156), 1997.
- Occupational Cancer Convention (No. 139) and Recommendation (No. 147), 1974.
- Labour inspection (Agriculture) Convention, 1969 (No.129).
- Safety and Health in Agriculture Convention (No. 184) and Recommendation (No. 192), 2001.
- Safety and Health in Construction Convention (No. 167) and Recommendation (No. 175), 1998.
- Safety and Health in Mines Convention (No. 176) and Recommendation (No. 183), 1995.
- List of Occupational Diseases Recommendation, 2002 (No. 194).

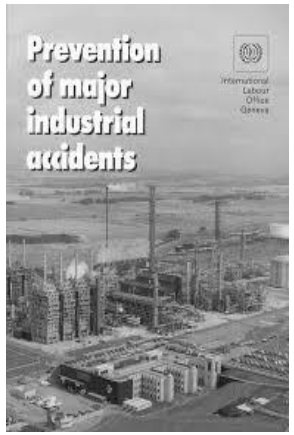
Codes of Practice: Ambient factors in the workplace

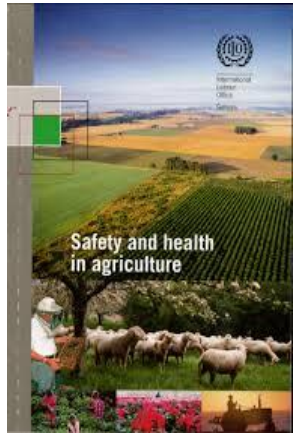
- Provides detailed technical advice on hazards and risks associated with heat exposure.
- How these risks can be effectively managed so as to prevent occupational accidents and diseases.
- For example, with regard to prevention and control in hot environments, the code advises that:

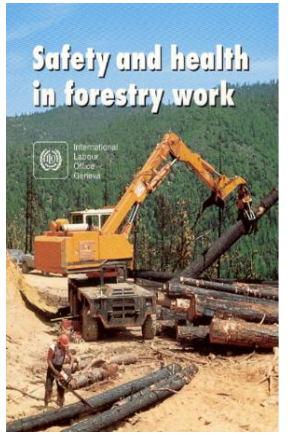
"[f]or hydration maintenance, employers should make water at low salt concentration or dilute flavoured drinks readily available to workers, and should encourage them to drink at least hourly, by providing a close source or arranging for drinks to be brought to the workers."

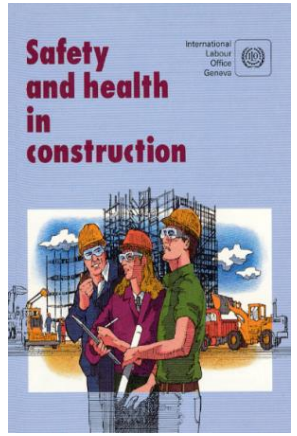


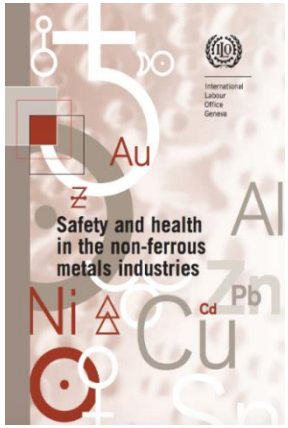
Other codes of practice related to chemicals





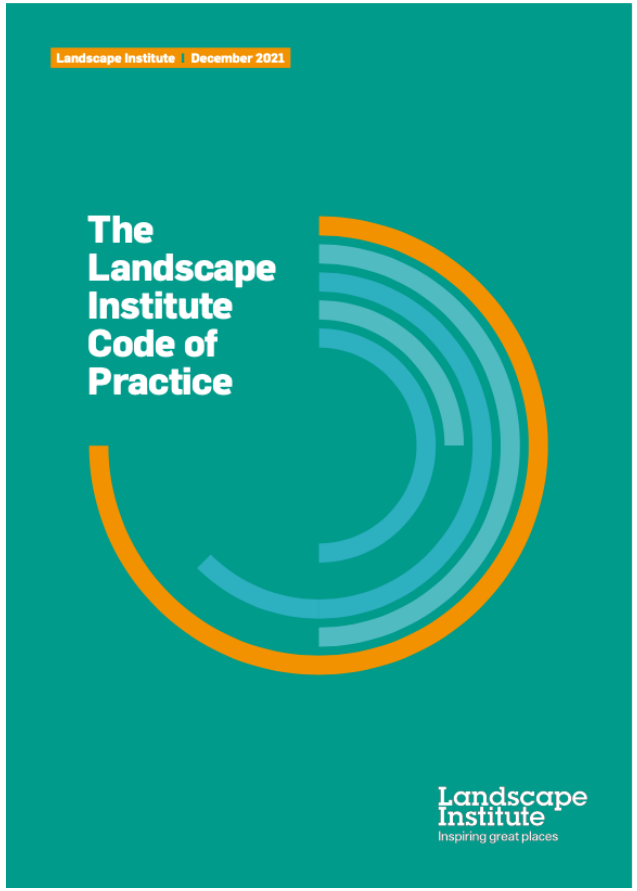






The Landscape Institute Code of Practice

- The Landscape Institute (LI) seeks to protect, conserve and enhance the natural and built environment for the benefit of the public through the promotion of landscape architecture.
- This code sets out the standards of professional conduct expected of all members of the Landscape Institute.
- Rule 1: You must deliver landscape services in ways which **promote sustainable development** and the **environmentally responsible use of resources**.
- Principle 2: Landscape professionals recognise the issue of **climate and biodiversity emergency** and practice in a manner consistent with the **UN Sustainable Development Goals**.



Application of ILS to climate adaptation and mitigation policies

Adaptation policies	Mitigation policies
Environmentally induced stress at work: • **Hazardous air quality**: C.148 (Working Environment (Air Pollution, Noise and Vibration)); • **Measures to cope with heat and other stress at work**: C.110 (Plantations), R.116 (Reduction of Hours of Work); • **Occupational safety and health (OSH)**: C.155 and P.155 (OSH), C.187 (Promotional Framework for OSH), C.161 (Occupational Health Services).	**Enhancement of adaptive capacity:** • **Poverty reduction**: various international labour standards, including those dealing with fundamental rights at work, employment, social security and OSH; • **Improving education/knowledge and skills**: C.140 (Paid Educational Leave), C.142 (Human Resources Development); C.155 and P155 (OSH); • **Promoting the rights of groups vulnerable to climate change**: C.111 (Discrimination), C.159 and R.168 (Vocational Rehabilitation and Employment (Disabled Persons)), C.183 (Maternity Protection), C.169 (Indigenous and Tribal Peoples).

Adaptation policies	Mitigation policies
Compensation and protection for workers in affected sectors: • **Unemployment**: C.102 (Social Security (Minimum Standards)), C.168 (Employment Promotion and Protection against Unemployment); • **Compensation for the victims of pollution and other environmental damage**: R.181 (Prevention of Major Industrial Accidents); • **Compensation for removal from traditional lands**: C.169 (Indigenous and Tribal Peoples); • **Minimum levels of benefits for workers facing an accident or illness related to work**: C.121 and R.121 (Employment Injury Benefits), R.202 (Social Protection Floors).	**Prevention of damage to the environment:** • **Prevention and protection measures**: C.162 and R.172 (Asbestos); C.176 (Safety and Health in Mines); R.192 (Safety and Health in Agriculture); • **Environmentally sound management of pollution and waste disposal**: C.162 and R.172 (Asbestos), C.170 and R.177 (Chemicals), C.184 and R.192 (Safety and Health in Agriculture); • **Environmental impact assessment**: C.169 (Indigenous and Tribal Peoples).
Environmentally induced displacement (migration): • **Labour migration specific standards**: C.097 (Migration for Employment), C.143 (Migrant Workers), R.100 (Protection of Migrant Workers); R.151 (Migrant Workers).	**Reduction of greenhouse gas emissions:** • **Agriculture related:** C.184 and R.192 (Safety and Health in Agriculture); • **Mining related**: C.176 and R.183 (Safety and Health in Mines).

Other policy level actions

Integration of climate change issues into all policy and practice.

- Climate change brings with it a host of **new risks** to the **world of work**.
- These risks **threaten the health and livelihoods** of numerous workers globally.
- **Vulnerable workers in LMIC** will be particularly impacted.
- We can no longer afford to treat climate change as an afterthought.
- Climate change must be integrated into all **OSH policy, programmes and profiles** at all levels.
- Concerns must become a **fundamental part of all OSH risk assessments**, rather than being a standalone feature.
- Priority actions, at both national and workplace levels, must **constantly evolve** to take into account new evidence for these **emerging risks**.

Research priorities for climate change concerns in the world of work

- Strengthen **Global Burden of Disease (GBD)** estimates for all exposures and outcomes associated with climate change.
- **Emerging diseases** which may be related to climate change e.g. Chronic Kidney Disease of unknown aetiology (CKDu).
- Further analysis into the **work sectors** most impacted by the various climate change issues**.**
- Focus on emerging **geographical concerns** e.g. changing distributions of **vector-borne diseases** and **migration of workers** due to issues such as infertile soil and rising sea levels.
- **Evidence-based interventions and guidelines** to better protect workers from adverse work conditions due to climate change.
- Policies and workplace actions to prevent harm to **vulnerable workers**.

Implement a national OSH system

- A **strong national OSH system** is critical.
- **ILO instruments on OSH and chemical safety** should be ratified and implemented.
- Use a **management systems approach**, based on the general ILO principles of these OSH instruments, as well as the ILO Guidelines on occupational safety and health management systems *(ILO–OSH 2001)*.
- This national policy framework should aim at the **continuous harmonisation, integration and improvement of preventive and protective OSH measures**, management systems and tools and capacity building, encompassing both the workplace and the environment.
- **Effective labour inspection services** provided with proper qualifications and training.

An integrated approach to risk assessment and management is key, with climate change considered in all fundamental OSH work, whether that's a policy, programme or risk assessment.

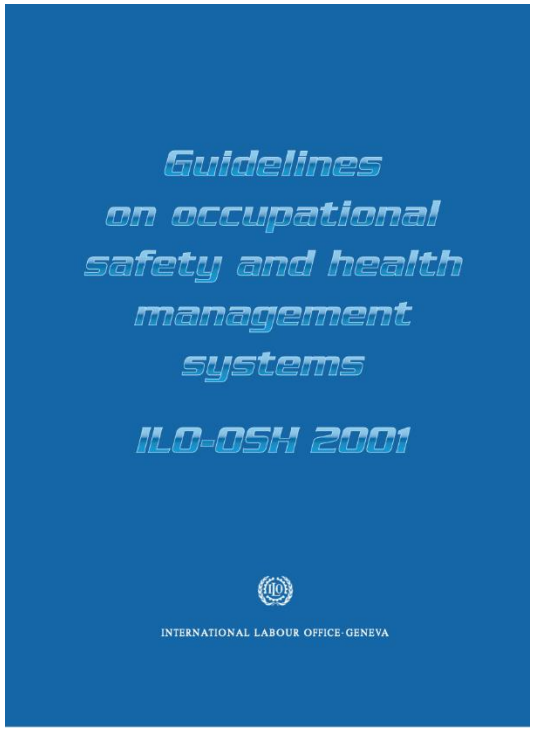
Components of a national OSH system

Should include:	Should also include, where appropriate
▸ **Laws and regulations**, collective agreements where appropriate and any other relevant instruments on OSH. ▸ An **authority or body**, or authorities or bodies, responsible for OSH, designated in accordance with national law and practice. ▸ **Mechanisms for ensuring compliance** with national laws and regulations, including systems of inspection. ▸ Arrangements to promote, at the level of undertaking, **cooperation** between management, workers and their representatives, as an essential element of workplace-related prevention measures.	▸ A **national tripartite advisory body**, or bodies, addressing OSH issues. ▸ **Information and advisory services** on OSH measures. ▸ The provision of **OSH training**. ▸ **Occupational health services** in accordance with national law and practice. ▸ **Research** on OSH. ▸ A mechanism for the **collection and analysis of data** on occupational injuries and diseases, taking into account relevant ILO instruments. ▸ Provisions for collaboration with **relevant insurance or social security schemes** covering occupational injuries and diseases. ▸ **Support mechanisms** for a progressive improvement of OSH in micro-enterprises, small and medium-sized enterprises and the informal economy.

Technical guidelines: OSH Management Systems Guidelines, 2001

Non-binding guidance tool on the establishment of efficient OSH management systems.

- Ensure the continual improvement of the working environment and of preventative measures on OSH.
- Guidelines can be applied nationally and organizationally:
  - **Nationally:** provide for the establishment of a national framework for OSH management systems, preferably supported by national laws and regulations.
  - **Organizational:** encourage the integration of OSH management system elements as an important component of overall policy and management arrangements.
- Guidelines establish a hierarchy of controls which structures all OSH control measures in decreasing order of effectiveness.



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Heat stress OELs

- OELs for **proxy measures of climate change**, for example heat stress, should also be produced.
- Some countries have already adopted **specific regulations to protect workers** from heat exposure and ensuing heat stress. Measures include:
  - Maximum temperatures to which workers may be exposed (e.g. Cyprus).
  - Preventing excessive heat levels and using protective equipment (e.g. Gabon).
  - Employment injury benefits for workers impacted by heat waves.
- There are currently **no harmonized international standards** for work in hot environments.

Training and skills development

Skills development is key to resilience-building and adaptation processes that also ensure decent work.

- In particular, skills development:
  - Helps displaced workers move to **sectors with employment growth**, thus protecting them against **income losses**.
  - Promotes **innovation**, **investment** and **competitiveness**.
  - Is required for the adequate implementation of adaptation strategies e.g. the development of climate-smart infrastructure *(ILO 2011, 2018)*.
- **Anticipating and monitoring skills needs** related to climate change adaptation are crucial first steps in skills development.
- The **active participation of the social partners** helps identify skills gaps and implement training.
- **Government funding** is need to **promote research** and **development work** in the area of climate change adaptation.

Social protection policies

Social protection systems must be adapted to offer support for people affected by climate-change related events *(ILO 2018)*.

- Social protection policies can help promote a **just transition to a green economy** and enable people to adapt to the **negative consequences of climate change**.
- They include:
  - **Cash transfers** – Facilitate mobility, reduce short-term vulnerability and increase the options available to vulnerable households for improving their adaptive capacity.
  - **Public employment programmes** – Provide a predictable income, enhance community resilience and reduce the impact of negative shocks.
- By 2030, extended social transfers are expected to lead to an increase in **employment rates** of **0.2% in developed countries** and **0.6% in developing countries**.

Case study: South Africa's Working for Water (WfW) programme

- **Social protection** and **skills development** for **disadvantaged groups of workers** to facilitate their employment in the water management and ecosystem sectors.
- The Expanded Public Works Programme (EPWP) aims to **create employment opportunities** and **alleviate poverty**, as well as providing **skills training** and **social protection**.
- WfW, subprogramme under the EPWP, addresses issues related to water and ecosystem management and the country's needs for employment creation, skills development and social protection.
- Currently, **more than 300 projects** are running under WfW in all nine provinces of the country *(DEA 2018)*.
- The programme specifically **targets vulnerable groups** by seeking to employ **60% women**, **20% youth** and **5% persons with disabilities**.
- Workers participating in the WfW programme receive practical training on techniques for clearing alien vegetation, business skills, health and safety, and social development *(Coetzer and Louw, 2012)*.

Case study: The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in India

- MGNREGA is aimed at:
  - Providing **social protection** and **economic security** for rural people in poverty
  - Strengthening **drought-proofing** and **flood management**
  - **Empowering** marginalized communities
- Through the MGNREGA, each rural household is entitled to **100 days of employment a year**.
- People are employed in **unskilled manual work** e.g. construction or improvement of community infrastructure, or the **generation of ecosystem services** that protect environmental resources.
- According to the Ministry of Rural Development, 60% of the work-hours provided through the programme in 2012 involved water conservation and 12% were related to the provision of irrigation facilities *(Das 2013)*.
- The programme also **increased female labour participation** and women's **autonomy in household decision-making** by providing them with **higher wages** than other rural jobs *(ILO 2017)*.

ILO initiatives for decent work in a changing climate

The ILO's Green Jobs Programme

- Works towards an **environmentally sustainable social and economic development**.
- Promotes worldwide the **creation of green jobs** as a way of **generating decent employment** and **income opportunities** with a **reduced environmental impact** and an increased ability to cope with the **challenges of climate change** and **scarce resources**.
- Green jobs are **decent jobs** in any economic sector which contribute to **preserving, restoring and enhancing environmental quality**.
- The programme follows two main strategies:
  - It addresses the employment and social dimension of environmental policies to ensure decent work to present and future generations.
  - It mainstreams environmental concerns into the world of work to change consumption and production patterns.
- The Green Jobs Programme has progressively assisted over 30 countries by building relevant ILO expertise and tools in dedicated areas of work.

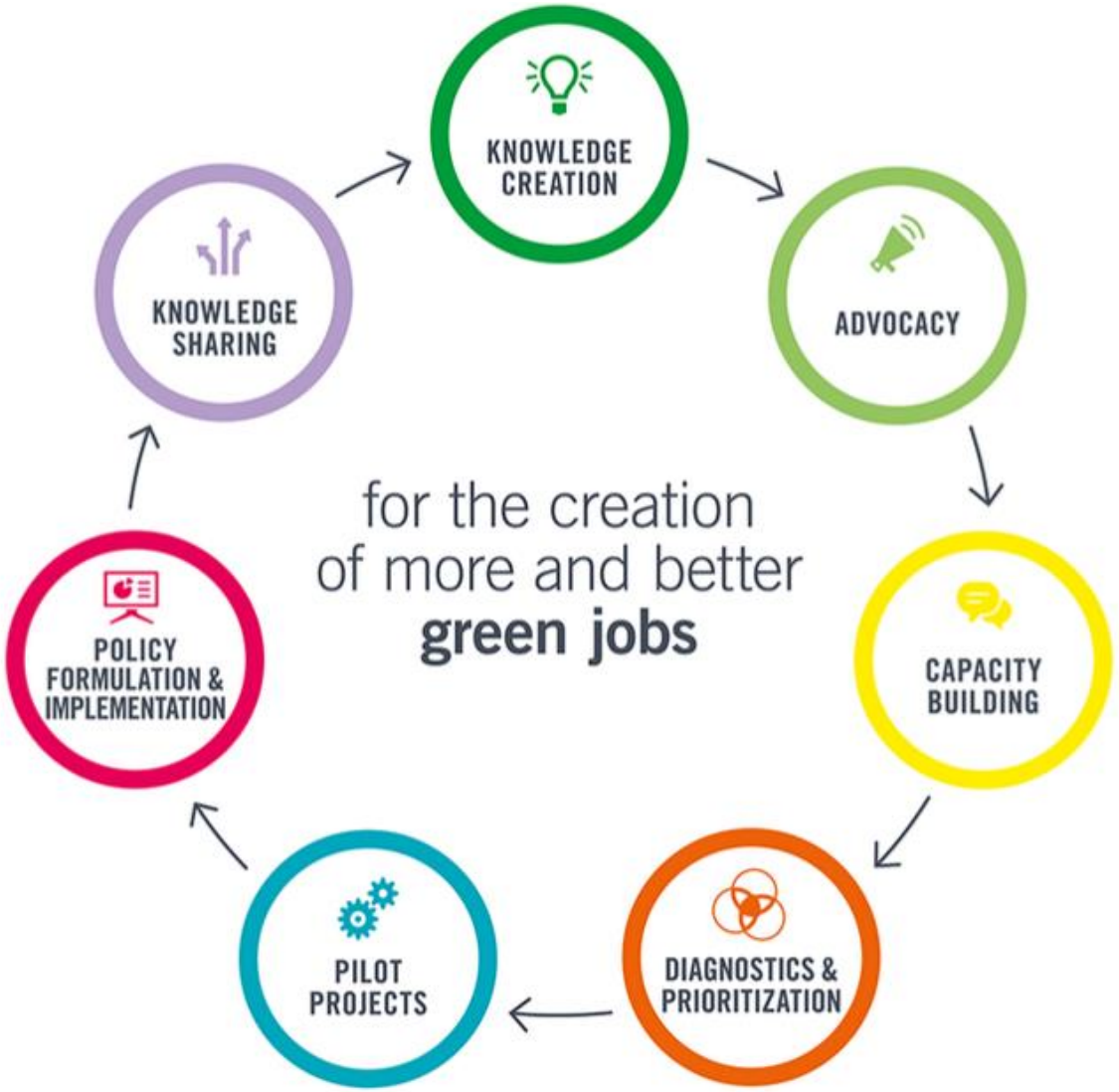
The ILO's Green Jobs Programme – Areas of work

- **Climate change** - The ILO is engaged in the UNFCCC process promoting its climate change toolbox, including the just transition framework, for adaptation measures and facilitating mitigation actions to unleash the job creation potential of a low-carbon economy.
- **Green Enterprise Development** - It involves the greening of existing enterprises, focusing on the production process and the promotion of green enterprises in the production of environmental goods and services. Green enterprise development results in greener, environmentally friendly, safer and more productive workplaces.
- **The Green Jobs Assessment Institutions Network (GAIN)** - GAIN is a network of research institutions and experts that works to assess the employment impact of policies designed to green the economy. It helps to fill an important knowledge and capacity gap, especially for developing countries. GAIN works to better understand the jobs dimension of green growth and to share that knowledge with its partners.

The ILO's Green Jobs Programme – Areas of work

- **Green works** - Green works offer ample green jobs opportunities locally notably in promoting forestry, irrigation, soil, water and flood protection which are at the heart of recovery and reconstruction. These infrastructure and related employment-intensive approaches have direct environmental benefits and help support communities to adapt to the effects of climate change.
- **Resources on Cooperatives and the Green Agenda** - Around the world cooperatives are emerging as economic actors in climate change adaptation and mitigation. They are increasingly greening their operations across sectors, which leads to both creation of new green jobs and transformation of existing jobs into new ones.
- **Skills Development** - Without a suitable trained workforce the transition to a greener economy will stall. Such skill shortages already pose a major barrier. Skills development is therefore key to unlock the job potential of greener economies.

The ILO's Green Jobs Programme



Components of the ILO's Green Jobs Programme

- **Knowledge creation** by documenting experiences, conducting global, regional and sectoral studies, and producing flagship reports and guidelines on the linkages between labour and environmental issues.
- **Advocacy** by building partnerships, such as PAGE , and engaging in dialogues and key negotiation processes for increased international policy coherence. The ILO contributed actively to the Paris Climate Change Conference in December 2015 .
- **Capacity building** by providing stakeholders with opportunities to learn about key green jobs concepts, suitable approaches, existing tools and best practices. Training programmes, offered in collaboration with ITC-ILO's Green Jobs Learning Cluster, at international, regional and national level, aim to provide stakeholders with the necessary knowledge to engage efficiently in strategy design for green jobs creation.

Components of the ILO's Green Jobs Programme

- **Diagnostics and prioritization** by identifying economic sectors with high potential for green job creation through national green jobs assessments.
- **Pilot projects** whereby tools for sectoral and thematic approaches are developed and tested such as green entrepreneurship, the greening of enterprises and local development of infrastructure for adaptation to climate change.
- **Policy advice** for the formulation and implementation of effective national or sectoral policies that create green jobs, foster social inclusion and improve sustainability;
- **Knowledge sharing** so that others can learn from best practices and country experiences.

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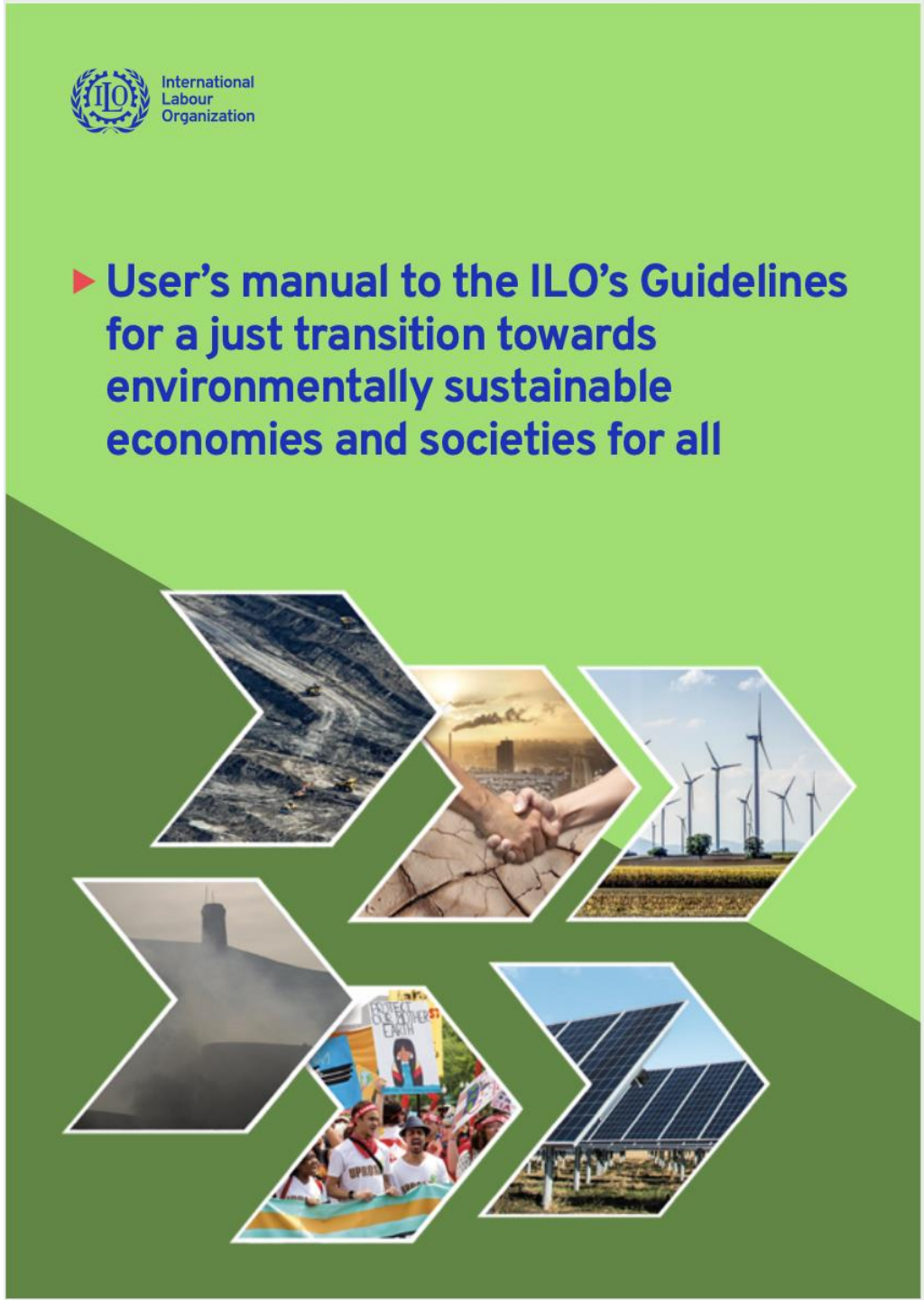
ILO *Guidelines for a Just Transition* (2015)

- Developed by the ILO through tripartite discussion
- Can be used to ensure that no workers are left behind during the transition to a green economy, and that the transition also strengthens decent work.
- Offers a portfolio of policy options for addressing the issues associated with the greening of the economy and the workplace and with the transition towards sustainable development.
- Encourage governments to develop national policies and plans for mitigation of, and adaptation to, climate change, as well as for disaster preparedness.



ILO *Guidelines for a Just Transition* (2015)

- Governments, employers and workers are advised to conduct assessments of **increased or new OSH risks** that arise from climate change, and to identify **adequate preventive and protective measures**.
- Social protection and skills development are key policy areas:
  - **Social protection policies** protect workers against the detrimental effects of climate change that jeopardize their ability to earn income *(ILO 2018)*.
  - **Skills development** helps displaced workers to move on to sectors where there is employment growth, thus protecting them against income losses and other adverse effects *(ILO 2018)*.
- **International labour standards** and **social dialogue** play an important role in addressing the challenges associated with climate change.
- The establishment of effective OSH systems requires **joint commitment and cooperation** between governments, employers and workers.

OSH and Fundamental Principles and Rights at Work (FPRW)

- An amendment to the **ILO Declaration on Fundamental Principles and Rights at Work**, to include OSH, will be discussed during the 110th session of the International Labour Conference in June 2022.
- If adopted, the proposed amendment would indicate that all ILO Member States would have an **obligation to respect and promote safe and healthy working conditions** in the same manner and with the same level of commitment as the four principles currently covered by the ILO Declaration on Fundamental Principles and Rights at Work.
- The sound management of hazardous chemicals in the workplace is an essential component of any OSH strategy.

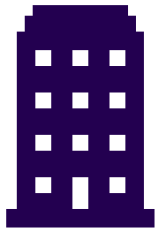
International Labour Organization

Multilateral environmental agreements

International Labour Organization

Question:

Can you name any multilateral environmental agreements?



International Labour Organization

Answer:

- Kyoto Protocol
- Paris Agreement
- Vienna Convention
- Basel Convention
- Rotterdam Convention
- Stockholm Convention
- Minamata Convention

Overview of multilateral environmental agreements

- Climate change
  - UN Framework Convention on Climate Change (UNFCCC) (1992)
  - Kyoto Protocol (2005)
  - Paris Agreement (2015)
- Chemical safety
  - Vienna Convention for the Protection of the Ozone Layer (1985)
  - Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1989)
  - Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1998)
  - Stockholm Convention on Persistent Organic Pollutants (POPs) (2001)
  - Minamata Convention on Mercury (2013)
- Sustainable Development Goals

UN Framework Convention on Climate Change (UNFCCC) (1992)

United Nations Climate Change

Adopted in 1992 and ratified by 197 countries

- The first global treaty to explicitly address climate change.
- It established an annual forum, known as the Conference of the Parties (COP) for international discussions aimed at stabilizing the concentration of greenhouse gases in the atmosphere.
- These meetings produced the Kyoto Protocol and the Paris Agreement.
- Main features:
  - Recognized the problem of climate change.
  - Expected industrialized nations to do the most to cut emissions on home ground and to financially support climate change activities in developing countries.
  - Asks industrialized countries to report regularly on their climate change policies and measures.
  - Seeks to help developing countries limit emissions in ways that will not hinder their economic progress.
  - Acknowledges the vulnerability of countries to the effects of climate change and calls for efforts to ease the consequences.

Kyoto Protocol (2005)

Adopted in 2005 and ratified by 191 countries and the EC.

- First legally binding climate treaty.
- Required developed countries to reduce emissions by an average of 5 percent below 1990 levels and established a system to monitor countries' progress.
- However, because many major emitters are not part of Kyoto, it only covers about 12% of global emissions.
- Main features:
  - Legally binding commitments to reduce emissions of greenhouse gases in ways that reflect underlying national differences in GHG emissions, wealth, and capacity to make the reductions.
  - Parties are required to prepare policies and measures for the reduction of greenhouse gases in their respective countries.
  - Minimize impacts on developing countries by establishing an adaptation fund for climate change.
  - Accounting, Reporting and Review in order to ensure the integrity of the Protocol.
  - Establish a Compliance Committee to enforce compliance with the commitments under the Protocol.

Paris Agreement (2015)

Adopted in 2015 and ratified by 193 countries

- The Paris Agreement, the first-ever universal, legally binding global climate change agreement, was adopted at the Paris climate conference (COP21) in December 2015 (United Nations 2015).
- The most significant global climate agreement to date, the Paris Agreement requires all countries to set emissions-reduction pledges.
- It also aims to reach global net-zero emissions, where the amount of greenhouse gases emitted equals the amount removed from the atmosphere, in the second half of the century.
- The Paris Agreement and the 2015 Sustainable Development Goals (SDGs) have brought nations together, with the objective of preventing dangerous climate change and promoting sustainable development.

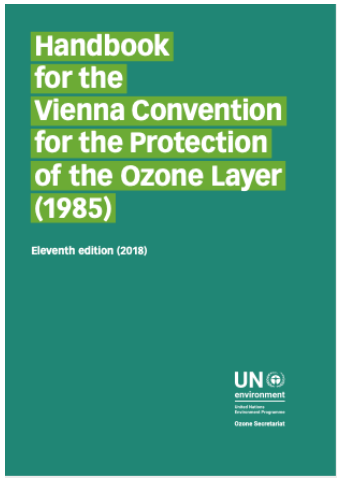
Paris Agreement (2015)

- Main features:
  - Reaffirms the goal of limiting global temperature increase to well below 2°C, while pursuing efforts to limit the increase to 1.5°C.
  - Aims to reach global peaking of greenhouse gas emissions (GHGs) as soon as possible, recognizing peaking will take longer for developing country countries.
  - Establishes binding commitments by all Parties to prepare, communicate and maintain a nationally determined contribution (NDC) to mitigation and to pursue domestic measures to achieve them.
  - Encourages Parties to conserve and enhance, as appropriate, sinks and reservoirs of GHGs.
  - Establishes a global goal on adaptation – of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change in the context of the temperature goal of the Agreement.
  - Reaffirms the obligations of developed countries to support the efforts of developing countries.

Are countries on track to meet their commitments?

- Steps in the right direction are also being taken by countries that set targets for reaching net-zero emissions of CO2 and other greenhouse gases.
  - Sweden and Norway were some of the first countries to legally commit to net-zero targets.
  - The UK was the first of the G7 major economies to do so with a commitment to reach net zero greenhouse gas emissions by 2050, closely followed by France.
  - In 2020, China committed to reaching carbon neutrality by 2060, while South Korea and Japan committed to net zero emissions by 2050.
  - Net zero targets have gained increased momentum, and analysts suggest that from November 2021, 90% of global GDP was covered by net zero pledges (Net Zero Tracker 2021).
- Actually reaching these targets, however, requires rolling out credible policies for reducing emissions immediately.

Vienna Convention for the Protection of the Ozone Layer (1985)



Adopted in 1985 and ratified by 20 states.

- The Convention provides frameworks for international reductions in the production of chlorofluorocarbons due to their contribution to the destruction of the ozone layer, resulting in an increased threat of skin cancer.
  - International sharing of climate and atmospheric research to promote knowledge of the effects on the ozone layer.
  - Calls for the adoption of international agencies to assess the harmful effects of depleted ozone and the promotion of policies that regulate the production of harmful substances that influence the ozone layer.
  - Creation of a panel of governmental atmospheric experts known as the Meeting of Ozone Research Managers, which assesses ozone depletion and climate change research and produces a report for the Conference of Parties (COP).

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal

Adopted in 1989 and ratified by 187 states.

- The Convention contains obligations relating to the export and import of hazardous waste.

Import and Export of hazardous waste.

- Art. 4(1): “prior informed consent.”
- Art. 4(9): export is only permissible if the exporting state does not have sufficient disposal facilities.
- Art 4(4): General prohibition on the export or import of wastes between parties and non-parties.

Treatment and management of hazardous waste.

- Art. 4(2): parties must ensure that the generation of hazardous waste and other waste is reduced to a minimum.

Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

Adopted in 1998 and ratified by 161 states.

- Art. 10: every party must submit a decision for each substance listed in Annex III, expressing its consent, non-consent or conditional consent to the importation of this substance. All parties exporting chemicals must then adopt and implement legislation banning the export of chemicals to parties who have not explicitly consented to their import.

Notification and information requirements for chemical exports.

- Parties exporting chemicals which they have prohibited or severely restricted must provide a notification to the importing State containing information on the chemicals' properties and hazards, safety measures to reduce exposure, the contact details of the national authority handling chemical exports, the name of the importing company and other information listed in Art. 12 and Annex V.
- Exported chemicals must also be properly labelled and provided with a customs group code of the WCO and SDS if the chemical is used for occupational purposes (Art. 13).
- Furthermore, all parties must facilitate the exchange of scientific, technical, economic and legal information on the chemicals covered by the Convention (Art. 14).

Minamata Convention on mercury

Adopted in 2013 and ratified by 115 states.

International treaty designed to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds.

- Main features:
  - Prohibit new mercury mining and prohibit existing mining within 15 years.
  - Export of mercury is prohibited.
  - Prohibit and phase down the production, import and export of mercury-added products.
  - Prohibit use of mercury in manufacturing processes.
  - Progressive reduction of the mercury emitted.
  - Take steps to control and reduce mercury emissions and releases to the environment.

Sustainable Development Goals (SDGs)

The SDGs cover a range of targets on the protection of the health and safety of workers and also of the public and the environment.

- **SDG 3, Target 3.9**: “by 2030 substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.”
- **SDG 8, Target 8.8**: “protect labour rights and promote safe and secure working environments for all workers, including migrant workers, particularly women migrants, and those in precarious employment.”
- **SDG 12, Target 12.4**: "by 2020,achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.”

The Sustainable Development Goals: 17 Goals to Transform Our World

Priority actions at the workplace level

Introduction

Climate change considerations must be integrated into all workplace level actions.

- **Implement a workplace programme for the sound management of chemicals:** To follow the ILO general blueprint for the sound management of chemicals in the workplace.
- **Implement a workplace level strategy:** This includes chemical identification and classification, risk assessment and identification of control measures.
- **Apply the Hierarchy of Controls:** Elimination, substitution, engineering controls, administrative controls and personal protective equipment (PPE).

ILO blueprint of a workplace programme

- The ILO recommends a number of components that make a general blueprint for the sound management of chemicals in the workplace.
- Climate change considerations must be integrated into all components of a workplace programme.

Components of a workplace programme – an overview

- General obligations, responsibilities and duties
- Classification and Labelling following the GHS
- Chemical Safety Data Sheets
- Operational Control Measures
- Design and Installation
- Work Systems and Practices
- Personal Protection
- Information and Training
- Maintenance of Engineering Controls
- Exposure Monitoring
- Medical and Health Surveillance
- Emergency Procedures and First Aid
- Investigation, Recording and Reporting of Accidents, Occupational Diseases and Other Incidents

Heat stress training programme for workers (NIOSH n.d)

- Employers should provide a heat stress training programme for all workers and supervisors about the following:
  - Recognition of the signs and symptoms of heat-related illnesses and administration of first aid.
  - Causes of heat-related illnesses and the procedures that will minimize the risk, such as drinking enough water and monitoring the color and amount of urine output.
  - Proper care and use of heat-protective clothing and equipment and the added heat load caused by exertion, clothing, and personal protective equipment.
  - Effects of nonoccupational factors (drugs, alcohol, obesity, etc.) on tolerance to occupational heat stress.
  - The importance of acclimatization.
  - The importance of immediately reporting to the supervisor any symptoms or signs of heat-related illness in themselves or in coworkers.
  - Procedures for responding to symptoms of possible heat-related illness and for contacting emergency medical services.

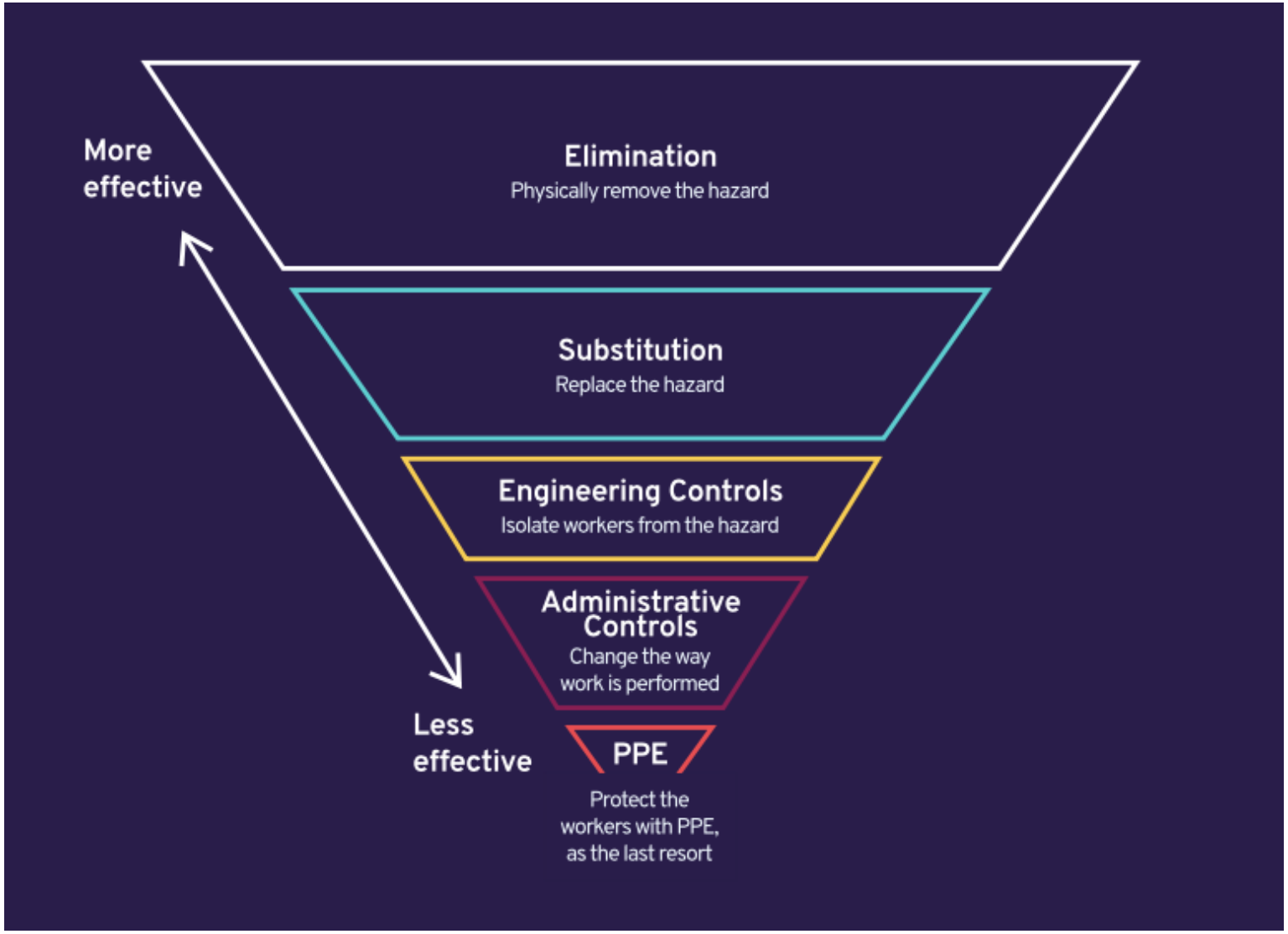
Heat stress training programme for workers (NIOSH n.d)

- In addition, supervisors should be trained on the following:
  - How to implement appropriate acclimatization.
  - What procedures to follow when a worker has symptoms consistent with heat-related illness, including emergency response procedures.
  - How to monitor weather reports.
  - How to respond to hot weather advisories.
  - How to monitor and encourage adequate fluid intake and rest breaks.

Implement a workplace level strategy

	STEP 1	STEP 2	STEP 3
CHEMICAL HAZARDS	**Identification of chemicals** Classification of hazards/labels and safety data sheets	**Determination of potential exposures in the workplace** Risk assessment	**Identification of control measures based on risk assessment** Implementation of controls, evaluation of effectiveness and maintenance of level of protection
CLIMATE CHANGE HAZARDS	**Identification of climate change hazards** Classification of hazards		

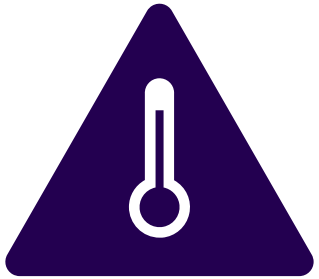
Apply the Hierarchy of Controls



International Labour Organization

Question:

Can you think of any engineering or administrative controls for workers impacted by heat stress?



Examples of engineering controls to combat heat stress (OSHA n.d.)

- Air conditioning (such as air-conditioned crane or construction equipment cabs, air conditioning in break rooms).
- Increased general ventilation.
- Cooling fans.
- Local exhaust ventilation at points of high heat production or moisture (such as exhaust hoods in laundry rooms).
- Reflective shields to redirect radiant heat.
- Insulation of hot surfaces (such as furnace walls).
- Elimination of steam leaks.
- Cooled seats or benches for rest breaks.
- Use of mechanical equipment to reduce manual work (such as conveyors and forklifts).
- Misting fans that produce a spray of fine water droplets.

Administrative controls to combat heat stress (NIOSH n.d)

- Limit time in the heat and/or increase recovery time spent in a cool environment.
- Reduce the metabolic demands of the job.
- Use special tools (i.e., tools intended to minimize manual strain).
- Increase the number of workers per task.
- Train supervisors and workers about heat stress.
- Implement a buddy system where workers observe each other for signs of heat intolerance.
- Require workers to conduct self-monitoring and create a work group (i.e., workers, a qualified healthcare provider, and a safety manager) to make decisions on self-monitoring options and standard operating procedures.
- Provide adequate amounts of cool, potable water near the work area and encourage workers to drink frequently.
- Implement a heat alert program whenever the weather service forecasts that a heat wave is likely to occur.
- Institute a heat acclimatization plan and increase physical fitness.

Examples of PPE controls to combat heat stress (OSHA n.d.)

- In most cases, heat stress should be reduced by engineering controls or work practice modifications. However, in some limited situations, special cooling devices can protect workers in hot environments:
  - Insulated suits
  - Reflective clothing
  - Infrared reflecting face shields
  - Cooling neck wraps
- In extremely hot conditions, the following thermally conditioned clothing might be used:
  - Vest that receives cooled air from a vortex tube connected to an external compressed air source.
  - Jackets or vests with reusable ice packs or phase change cooling packs in the pockets.
  - Workers should be aware that use of certain personal protective equipment (e.g., certain types of respirators, impermeable clothing, and head coverings) can increase the risk of heat-related illness.

Methods for protecting workers from heat stress

- Drink water frequently.
- Take breaks in cool and shaded areas.
- Take more breaks during particularly hot periods.
- Wear clothing that provides protection from the sun, while allowing airflow to the body.
- Wear a hat if working outside.
- Be alert to the symptoms of heat exhaustion or heatstroke.
- Individual heat-reducing measures can be complemented by the use of a “buddy system”.
- Workers should inform their employers about any concerns they may have regarding the work environment.

Case study: Green and conventional office environments

- People spend approximately 90 per cent of time indoors, including in work buildings. The type of indoor environment can therefore significantly influence health.
- Rising carbon dioxide levels are one of the main problems inside buildings.
- A study by Allen at al. (2016) looked at associations between cognitive function and carbon dioxide, ventilation and volatile organic compound (VOC) exposures in office workers in either conventional or ‘Green’ buildings.
- Workers were either in conventional office buildings or in ‘Green’ buildings
- Office workers had significantly improved cognitive function scores when working in ‘Green’ environments.
- Exposure to CO2 and VOCs at levels found in conventional office buildings was associated with lower cognitive scores.
- Using low-emitting materials, which is common practice in ‘Green buildings’, reduces in-office VOC exposures.
- Increasing the supply of outdoor air lowers exposures to not only CO2 and VOCs but also to other indoor contaminants.

Rights and responsibilities

The role of governments, employers and workers

- Governments, employers and workers all have a role in **promoting adaptation measures**.
- The establishment of effective OSH systems requires **joint commitment** and **cooperation** between governments, employers and workers.
- Possible adaptation measures can be drawn up using the **ILO's principle of tripartism** to outline the respective roles and responsibilities of governments, employers' and workers' organizations.
- These measures can then be incorporated into **national employment policies.**

Responsibilities of government related to climate change

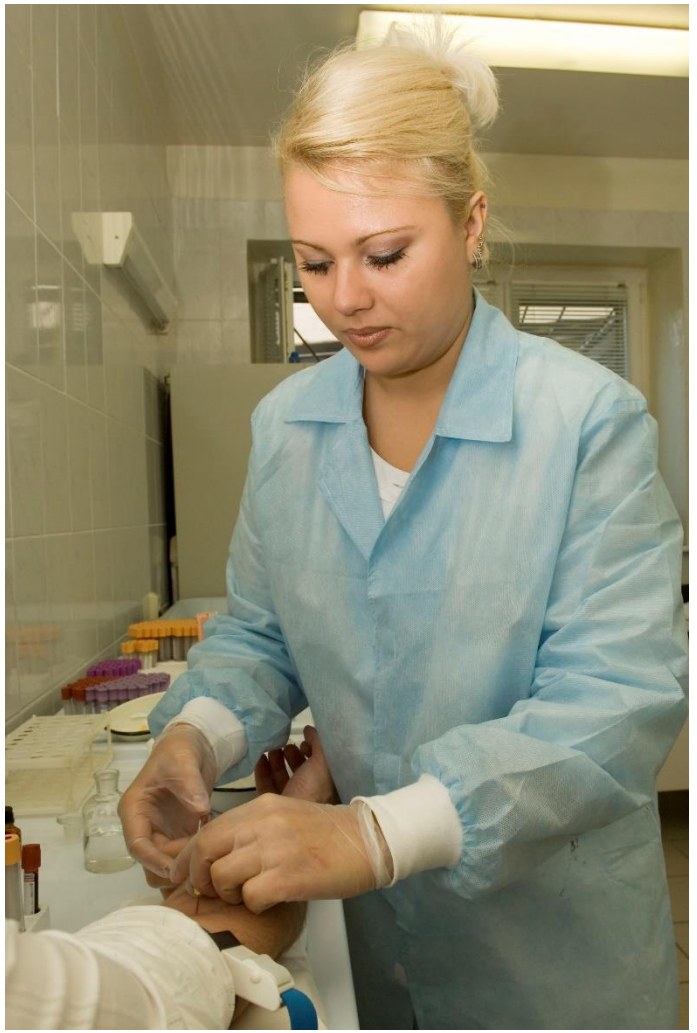
- As climate change hazards endanger decent work conditions, **regulatory frameworks** must be adjusted.
- Governments are instrumental in creating a regulatory environment that facilitates **behavioural change** among employers and individual workers, and that guides the development of measures to tackle workplace hazards.
- **Evidence-based thresholds** should be developed, for example for air temperature.
- Public works or **public employment programmes** are needed that promote decent labour practices to enable low-skilled workers to earn an income and reduce their risk of ill-health in adverse weather conditions.
- Regulatory interventions are needed to **promote specific technologies** e.g. technical standards for buildings to reduce internal temperatures.
- **Local public employment policies** are needed to discourage rural–urban migration or, alternatively, to facilitate migration if there are no other options.
- The promotion of an **enabling environment** for “green” businesses and the development of necessary skills and business acumen.

The role of the government is not limited to setting standards

- The development of **comprehensive infrastructure** (e.g. for early warning systems, safe water supplies and climate-smart planning) requires direct participation by the government.
- Appropriate resources have to be made available for **labour inspections** to supervise enforcement and compliance.
- Governments can play the role of a **facilitator** by ensuring that employers and workers alike act in the interest of the general good – an aspect that is emphasized in the ILO Guidelines for a just transition.
- Governments can create an environment that is conducive to **bringing key stakeholders** together.
- They can help employers' and workers' organizations to comply with **OSH regulations** by launching **educational** and **awareness-raising campaigns**.
- Adaptation efforts can be further enhanced through **financial and business development services** and commitment of resources in order to help employers and workers achieve specific outcomes.

General responsibilities of government

- Access to coverage for **medical care** and **sickness benefits**, quarantine and isolation for workers sick because of their work.
- Schemes for **employment injury benefits** according to national regulations.
- Workers who are ill as a result of their work should be entitled to **health care**, and to the extent that they are incapacitated for work, **cash benefits** or **compensation**.
- Cash benefits or compensation for **dependent family members**, as well as funeral grants or benefits.



Responsibilities of employers related to climate change

- Provide a **safe and healthy workplace** and ensure that working conditions conform to those standards.
- **Assess risks** in the workplace and **protect workers** from recognized serious hazards.
- Such assessments should be part of an **OSH management system** implemented by the employer with the participation of the workers.
- Risk assessments are necessary because climate-related hazards can vary widely across and within regions and activities.
- Once a hazard has been identified, employers need to take action to **eliminate the hazard** and **minimize the risk** by implementing a series of **control measures**.

General responsibilities of employers

- Ensure that **workplaces, machinery, equipment and processes** are safe.
- Ensure that chemical substances are **without risk to health**.
- Provide PPE to prevent risk of accidents or adverse effects on health.
- Provide measures to deal with **emergencies and accidents**, including adequate first-aid arrangements.
- Ensure that workers and their representatives are **consulted, informed and trained on OSH**.
- **Collaborate with health authori**ties to promote health and safety at the workplace.

General responsibilities of employers

- Make arrangements for workers to have the **time and resources** to participate actively in the processes of organizing, planning and implementation, evaluation and action for improvement of the health and safety.
- Ensure the establishment and efficient functioning of a **safety and health committee** in accordance with national laws and practice.
- Ensure that workers **report on incidents** and adopt measures for immediate follow-up, including victim support.
- **Notify the competent authority** of cases of occupational injuries and diseases caused by exposure to chemicals, according to national law.

Rights of workers

Workers have the right to a safe and healthy work environment.

- The provision of **adequate information and training** on OSH, in forms and languages easily understood by the workers.
- Workers may enquire into, and be consulted by the employer on, all aspects of OSH associated with their work.
- They should be able to **appeal to the competent authority** if they consider measures are inadequate to ensure OSH.
- They have the right to information and training on both climate change hazards and chemical safety.
- Suitable **PPE** should be provided free of charge, along with training on usage, maintenance and storage.

International Labour Organization

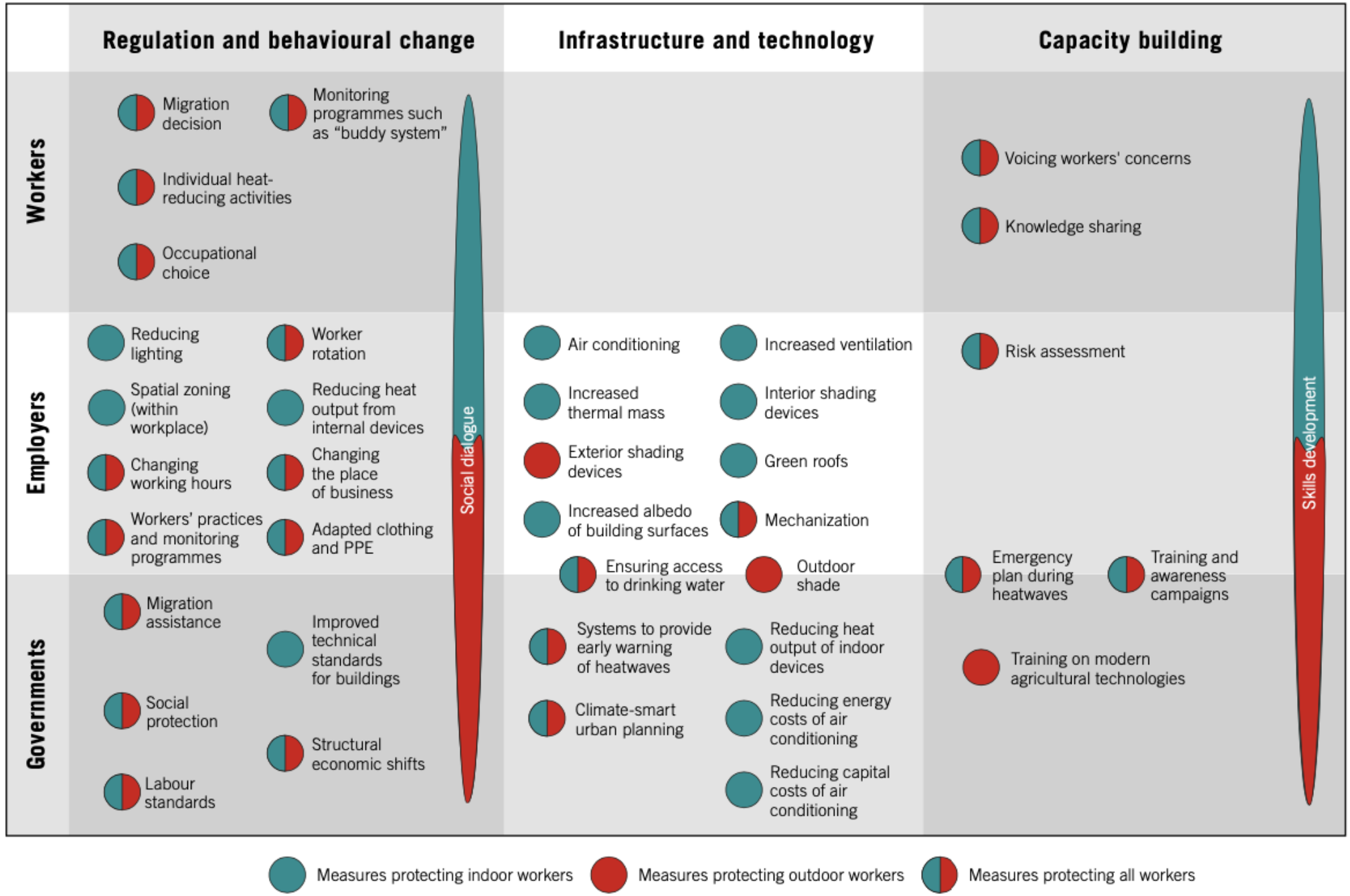
Further rights of workers

- Refrain from using a substance which can reasonably be expected to be hazardous, if the relevant information is not available to assess the hazards or risks to safety and health.
- Remove themselves from a work situation which presents an imminent and **serious danger** to life or health.
- Be transferred to **alternative work** or receive **adequate compensation** if this is not possible.
- Receive **rehabilitation**, **medical treatment** and **compensation** for occupational accidents or diseases.

General responsibilities of workers

- **Co-operate** with the employer in the field of OSH.
- **Take reasonable care** for their own safety and that of other persons who may be affected by their acts.
- **Comply with instructions** given for their own safety and health and those of others.
- Use **safety devices** and PPE correctly and not render them inoperable.
- **Report any accident or injury** to health, which arises in the course of or in connection with work.
- Workers must also **collaborate with enterprise management** to promote health and safety at the workplace.
- **Participate in training on climate change** provided by the employer.

Figure 8.1 The role of governments, employers and workers in reducing vulnerability to heat stress and promoting adaptation



Social dialogue

- To **promote consensus building** and **democratic involvement** at all levels.
- To create an **enabling environment** to ensure safe, healthy, decent and productive work.
- Has the potential to **resolve important economic and social issues**, encourage good governance, advance social and industrial stability and boost economic progress.
- **Enhance sound governance frameworks** through transparency, public participation, and accountability.
- **Active participation** is needed for policy development and governance amongst workers, employers, policy makers, managers and OSH professionals.
- Sustainable industrial policies underpinned by meaningful and effective social dialogue are key.

Social dialogue and climate change

- Social dialogue can play an important role in adaptation to climate change.
- Workers and employers need to be involved, together with governments, in the development of mitigation and adaptation policies because these have a direct impact on working conditions and the world of work.
- Workers and employers are best placed to take appropriate action in the workplace, such as ensuring compliance with health and safety standards during emergencies, finding practical solutions to enable workers to do their jobs and continuously exploring new ways of coping with the effects of climate change (TUC, 2009).
- Collective agreements at the national level are beginning to include climate change-related provisions.
- Most national agreements that address environmental concerns focus explicitly on greening the workplace and actions that may have adaptation co-benefits.

Social dialogue and climate change

- Social dialogue is also crucial to the development of national OSH policies, which should be drawn up in consultation with the most representative organizations of employers and workers.
- The implementing infrastructure for national OSH policies should be established, maintained, progressively developed and periodically reviewed in consultation with those organizations.
- In addition, social dialogue can help to make climate change governance more labour-friendly by promoting policies that take account of both environmental and labour concerns.

Micro-, small and medium-sized enterprises are key actors in adaptation

- Micro-, small and medium-sized enterprises (MSMEs) have a vital role to play in ensuring the livelihoods of communities because the investments they make mostly affect their local surroundings.
- MSMEs are in a unique position to develop locally relevant, effective adaptation solutions which can increase the resilience of societies as a whole.
- Engaging the private sector, and MSMEs in particular, in the development and implementation of adaptation measures will make these more likely to succeed.
- One successful example of such engagement is the Climate Expert risk assessments developed for the MSME sector by the German Agency for International Cooperation (GIZ).
- This assessment is comprehensive in that it considers both the direct impacts of climate change on such enterprises' buildings, processes, logistics, stock, employees and surrounding com- munities, and the indirect impacts arising from altered conditions in the market, financial landscape and regulatory environment.

Case study: Community engagement and employment opportunities in the restoration of forest land in Indonesia (ILO 2013)

- Forest land covers 60% of Indonesia's land area, making it the third largest area of tropical rainforest in the world.
- Launched in 1996, the Mega Rice Project in Central Kalimantan resulted in over one million hectares of peat swamp forest being drained for conversion into rice paddies.
- After the peat was drained and canals were built, it was found that the soil conditions were not suit-able for intensive agriculture.
- Much of the peatland was either abandoned or turned into palm oil plantations; in some cases, it also ended up being used by indigenous peoples for smallholder farming.
- The degraded land burns frequently, leading to transboundary haze, high levels of GHG emissions and increased livelihood vulnerability.
- Successful efforts to restore and conserve the area began in 2007.
- One of the key principles that contributed to the successful socio-economic development achieved was community empowerment, notably the participation of communities in the design and implementation of activities.

Case study: Community engagement and employment opportunities in the restoration of forest land in Indonesia (continued)

- One such activity was the GLACIER (Green Livelihood Access for Central Kalimantan's Inclusive Environmental Response to Climate Change) project, which ran for 12 months from 2012 to 2013.
- The actions undertaken under that project included the assessment of canal blocking, fire prevention, agroforestry and investments in environmental infrastructure.
- Based on participatory decision-making that also maximized employment opportunities, the GLACIER project created temporary jobs for members of the local communities, while infrastructure investments improved the communities' access to livelihoods, public facilities, such as schools and community health clinics, as well as to markets outside their villages.
- These outputs have helped overcome the many challenges to sustainable development in Central Kalimantan, among which are the fight against illegal logging, fire management, drainage of peatland, achieving sustainable cultivation and expansion of plantations, and the need to combat encroachment on protected and conservation areas as well as illegal mining.


International
Labour
Organization
Creating jobs
and
protecting
workers and
income

Climate change measures can create jobs and protect workers and income

The transition to a low-GHG economy is expected to lead to a net creation of jobs.

- Climate change mitigation can keep **future adaptation costs down** and bring about **net employment creation** through a substantial reallocation of labour.
- However, **immediate action** is needed, as climate change is already having a **profound impact** and this is expected to continue.
- Adaptation measures can lead to **employment gains** and **prevent job losses**.

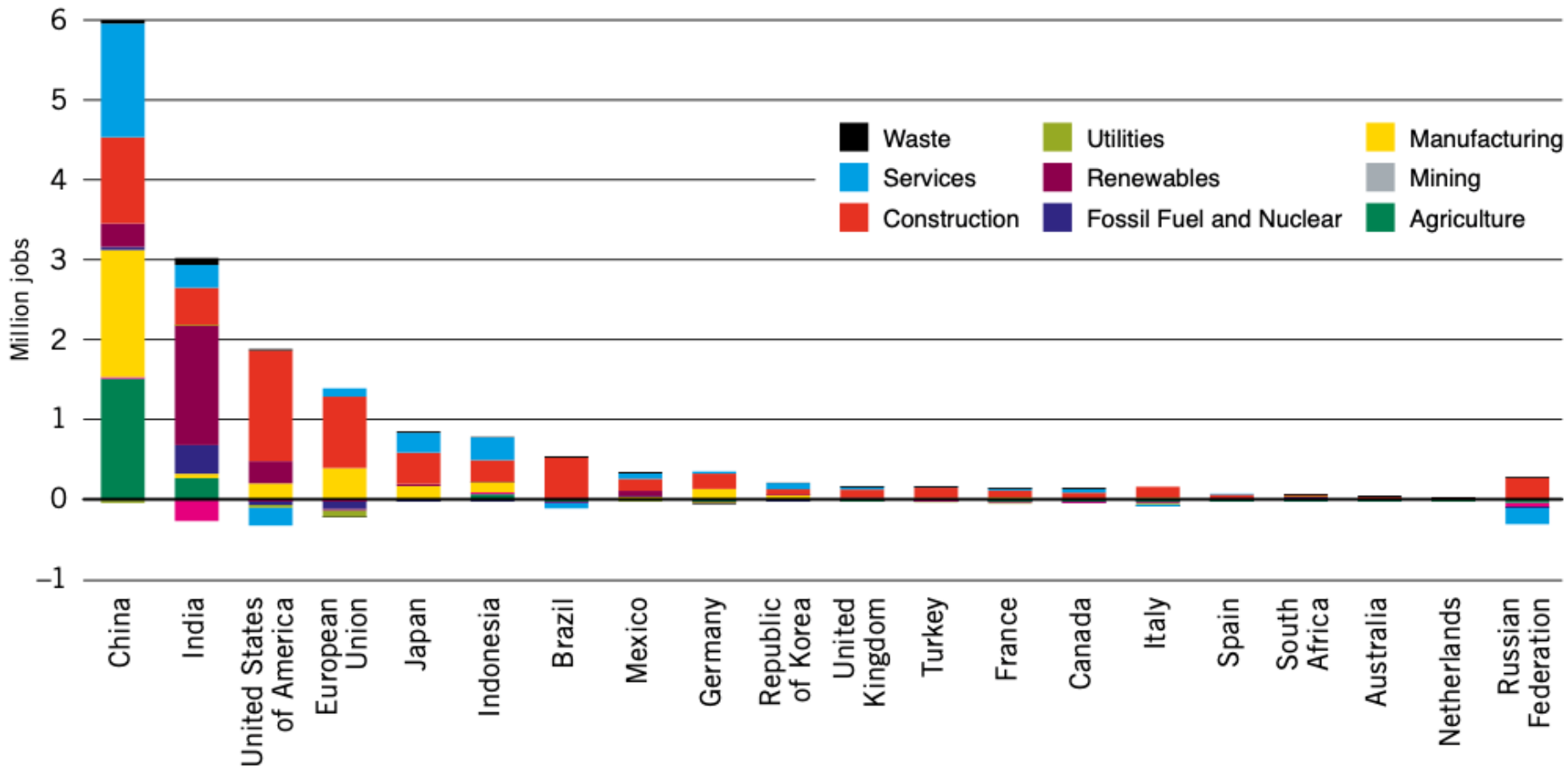
Twenty-four million new jobs will be created globally by 2030 if the right policies to promote a greener economy are put in place *(ILO 2018)*.

Job creation in new areas and sectors

Action to limit global warming to 2°C will result in sufficient job creation to more than offset job losses of 6 million elsewhere *(ILO 2018)*.

- There will be **net job creation** in the Americas, Asia and the Pacific and Europe, representing some 3 million, 14 million and 2 million jobs respectively. There could be **net job losses** in the Middle East and Africa due to their dependence on fossil fuel and mining, respectively.
- Most sectors of the economy will benefit from **net job creation**. Only two sectors, petroleum extraction and petroleum refining, show losses of 1 million or more jobs.
- New jobs will be created by adopting **sustainable practices** in the energy sector, including **changes in the energy mix**, **promoting the use of electric vehicles** and **improving the energy efficiency of buildings**.
- **Ecosystem services** (e.g. pest control and water purification) sustain, among others, farming, fishing, forestry and tourism activities, which employ **1.2 billion workers**.
- **2.5 million jobs** will be created in **renewables-based electricity**, offsetting some 400,000 jobs lost in fossil fuel-based electricity generation.
- **6 million jobs** can be created by transitioning towards a ‘circular economy’ which includes activities like recycling, repair, rent and remanufacture.

Figure 3. Achieving energy sustainability and its impact on employment in 2030 in G20 countries (millions of jobs)



Notes: This figure illustrates the employment outcomes that could be achieved by 2030 in a scenario of energy sustainability as opposed to the business-as-usual scenario. The energy sustainability scenario combines the IEA's 2°C scenario (IEA, 2015) with projected electric vehicle sales (UBS Research and UBS Evidence Lab, 2017). It further assumes that all energy efficiency savings are invested in construction to retrofit existing buildings. The scenarios are implemented in a multi-regional input–output model. See Appendix 2 in ILO (2018a) for methodological details.

Investment in adaptation infrastructure is likely to have positive effects on employment.

- The employment impact can be separated into three components *(ILO 2018)*:
  - **Direct effects**: Employment in industries directly targeted by the investment e.g. construction.
  - **Indirect effects**: Employment in industries that supply inputs for infrastructure development e.g. engineering services, materials and transport.
  - **Induced effects**: Employment generated by consumption as the income of firms and households increases.
- The employment effects of investment in adaptation infrastructure vary between countries:
  - For every USD 1 million invested in the construction sector, close to 650 jobs are expected to be created in India, 200 in China, 160 both in Brazil and in Indonesia, and 120 in the Russian Federation.
- The higher costs associated with initial investment in resilient infrastructure are likely to be recouped in the long term through reduced expenses on repair work and on disaster response *(Knopman et al. 2017)*.

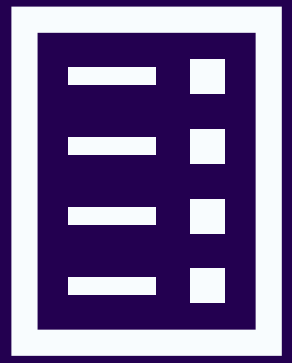
Water-dependent jobs: A key source of investment that spills over across the whole economy

- **3 out of 4 jobs worldwide** are heavily or moderately dependent on water.
- Adaptation measures, such as investment in the infrastructure required for the **conservation, treatment and supply of water**, can increase both the number and quality of jobs across the economy.
- **Reforestation and afforestation** are further effective adaptation measures, because of the ability of forests to **regulate water flows**, **act as barriers against storm surges** and **protect against erosion and mudslides**.
- At the same time, the many other ecosystem services provided by forests **create jobs** and **economic value**.

Case study: Adaptation to climate change in Argentina (SSRH 2017)

- **Floods** accounted for about **95% of all economic damage** caused by environmental disasters in Argentina in 2016. **Droughts** and **wildfires** also pose a real threat to both the population and the economy.
- **Argentina's National Water Plan** ("Plan Nacional de Agua Potable y Saneamiento") provides a **framework for coordinating adaptation efforts** by both the national government and the provinces.
- The Plan's objectives go beyond **adaptation to extreme weather conditions** and include key actions such as **investment in the infrastructure for drinking water, sanitation and irrigation**, and the **construction of dams and water reservoirs** aimed at controlling floods, securing water supply and generating hydraulic energy.
- The National Water Plan as a whole is expected to attract about **USD 80 billion in investments** and to generate **300,000 new jobs**.
- Implementation should trigger spill over effects on other sectors, **creating indirect jobs** in manufacturing and services activities along the production chain.
- An economy-wide effect is expected as a result of **enhanced consumption and trade**.
- Investments should have **long-term positive effects on local labour markets**, because they will **reduce vulnerability to disasters** and **increase resilience**.

End of session activity



Quiz

Name some workplace measures to protect these workers from a) Hazardous chemical exposures b) Heat stress

Construction workers

Tannery workers

Underground miners

International Labour Organization

Key ILO resources

- Working on a warmer planet: The effect of heat stress on productivity and decent work (2019).
- Exposure to hazardous chemicals at work and resulting health impacts: A global review (2021).
- World Employment and Social Outlook: Greening with Jobs (2018).
- The employment impact of climate change adaptation: Input document for the G20 Climate Sustainability Working Group (2018).
- Guidelines for a just transition towards environmentally sustainable economies and societies for all (2015).
- The Sound Management of Chemicals and Waste in the World of Work (2019).
- All You Need to Know: Convention No. 170.
- Major hazard control: A practical manual (1993).
- Prevention of major industrial accidents: code of practice (1991).
- Diagnostic and exposure criteria for occupational diseases - Guidance notes for diagnosis and prevention of the diseases in the ILO List of Occupational Diseases (revised 2010) (2022).