Ensuring Safety and Health at Work in a Changing Climate

For Prelims: International Labour Organization (ILO), Solar Ultraviolet (UV) Radiation, Vector-Borne Diseases, Agrochemicals, Heat Stress, Air Pollution, Wildfires, Tropical Cyclones, UNFCCC 28th Conference of the Parties (COP28).

For Mains: Climate change and ts impact on human health and safety.

Why in News?

Recently, the **International Labour Organization** has published its report **'Ensuring safety and health at work in a changing climate'.**

- This report presents critical evidence related to the impacts of **climate change** on **global occupational safety and health (OSH) protections.**
- **OSH protections** have struggled to keep up with the evolving risks from **climate change**, resulting in worker mortality and morbidity.

How Climate Change Impacts the Safety and Health of Workers?

- **Climate change** is already having serious impacts on the **safety and health of workers** in all regions of the world.
- Workers are among those most exposed to **climate change hazards** yet frequently have no choice but to continue working, even if conditions are dangerous.
- This report presents critical evidence related to **six key impacts** of climate change on OSH, which were chosen for their **severity and the magnitude** of their effects on workers:
  - Excessive heat,
  - **Solar ultraviolet (UV) radiation,**
  - Extreme weather events,
  - **Workplace** air pollution,
  - **Vector-borne diseases**
  - **Agrochemicals.**

Climate Change and Environment Related Risks	Examples of Workers at High Risk	Health Impacts	Responses and Progress
Excessive Heat	Workers in **agriculture**, environmental goods and	Heat stress, **heatstroke**, heat	**General OSH** includes maxi mum

	services (natural resource management), **construction**, refuse collection, emergency repair work, transport, tourism and sports.	exhaustion, rhabdomyolysis, heat syncope, heat cramps, heat rash, **cardiovascular disease**, acute kidney injury, chronic kidney disease, physical injury.	**temperature limits** and guidelines for adaptive measures at the workplace level. Simple, evidence-based workplace protective measures include **acclimatization**, self-pacing, **hydration**, mechanization and **clothing.**
UV Radiation	Outdoor workers, including in **construction and agriculture**, lifeguards, power utility workers, gardeners, postal workers and dock workers.	**Sunburn**, skin blistering, acute eye damage, weakened immune systems, pterygium, **cataracts**, skin cancers.	In line with the ILO List of Occupational Diseases, some countries have included diseases caused by solar UV radiation in their national lists. Simple workplace protective measures include **PPE, sunscreen and shaded rest areas**.

Extreme Weather Events	Medical perso nnel, **firefighters**, other emergency workers, **construction workers** involved in clean-up, agricultural and fishing workers.	**Respiratory** and **cardiovascular** disease, injuries and premature deaths	Some general OSH legislation requires Emergency response plans for crisis situations, which include **natural disasters**, but these are quite broad and do not address new challenges effectively.
Workplace Air Pollution	All workers, with a focus on outdoor workers, transport workers and firefighters.	Cancer (lung), respiratory disease**,** cardiovascular disease**.**	Measures to reduce **air pollution** are mostly integrated into overall **climate change mitigation** or **public health policies.** Engineering controls (e.g., adequate **ventilation systems**) are not usually applicable outdoors, but administrative controls, such as rotating job roles, may be effective.
Vector-Borne Diseases	Outdoor workers	Diseases such as **malaria**,	Where it exists, legislation

	include **farmers, foresters, landscapers, groundskeepers,** gardeners, painters, roofers, pavers, construction workers, firefighters, among others.	Lyme disease, **dengue**, schistosomiasis, leishmaniasis, Chagas disease and African trypanosomiasis, among others.	protecting workers from vector borne diseases is mainly included in legislation covering **biological hazards.** Extremely limited research exists regarding protection measures for workers specifically.
Agrochemicals	Workers in agriculture, **plantations, chemical industries,** forestry, **pesticide** sales, green space and **vector control.**	Poisoning, cancer, **neurotoxicity**, **endocrine disruption**, reproductive disorders, cardiovascular disease, **chronic obstructive pulmonary disease (COPD)**, immune suppression.	Some countries have recognized **pesticide-related** health concerns in occupational disease lists. There is limited legislation regarding occupational exposure limits (OELs) and to date there is no harmonized, internationally agreed list of highly hazardous pesticides (HHPs).

Why are Workers at Greater Risk?

- Between 2011 and 2020, the **average temperature** of the Earth's surface was **1.1°C warmer** than the average temperature in the late 19th century.
- Workers, especially those **working outdoors**, are frequently the **first to be exposed** to the consequences of **climate change,** often for longer periods and at greater intensities than the general population.
- They frequently face conditions that the public can choose to avoid.
    - **Women Workers:** They may be at increased risk due to their job roles, such as in **subsistence agriculture**, and during different life stages; pregnancy-related complications include **hypertension**, miscarriages and stillbirths.
    - **Men Workers:** They are most likely to carry out **heavy manual labor,** for example in construction and agriculture, often in **hot conditions,** and are therefore at high risk of many **climate change impacts.**
    - **Young Workers**: They are often exposed to **excessive heat** in sectors such as agriculture, construction and **waste management** and tend to be more likely to have a serious accident at work than older adults, as they may lack maturity, skills, training and experience.
    - **Older Adult Workers:** They are less able to tolerate stress due to **slower metabolisms**, weaker immune systems and an increased **disease burden.**
    - **Workers with a Disability:** They experience disproportionately higher rates of social risk factors, such as **poverty** and **lower educational attainment,** that contribute to poorer health outcomes during extreme weather events or climate-related emergencies.
    - **Workers with Pre-Existing Health Conditions:** **Climate change** risks may exacerbate pre-existing health conditions, including chronic illnesses such as **diabetes** and **heart, kidney and respiratory diseases.**
    - **Migrant workers:** They are frequently employed in high-risk, **physically demanding occupations,** for example as **harvest workers**, and may be unable to understand OSH procedures and training materials due to **language barriers**.
    - **Workers in the Informal Economy**: Due to financial concerns, **informal workers**, as well as many own-account workers, may be unable to stop work, even when their health is at risk from **extreme climate events.**

How Climate Change is Impacting the Health and Productivity of Workers?

- **Excessive Heat:**
    - Work productivity is reduced at **high temperatures** because it is either too hot to work or workers have to work at a **slower pace.**
    - It projected that by 2030, 2.2% of total working hours worldwide will be lost to high temperatures a productivity **loss equivalent to 80 million full-time jobs.**
    - Heat stress is projected to reduce global gross domestic product (GDP) by **US$2,400 billion in 2030.**
- **Ultraviolet (UV) Radiation:**
    - The economic impact of work-related **UV radiation-induced skin cancer** is hard to measure but likely to be considerable.
    - In Canada, for example, the **direct and indirect costs** of occupational **non-melanoma skin cancer** cases are estimated at 28.9 million Canadian dollars.
- **Extreme Weather Events:**
    - The financial implications of extreme weather events include damage to infrastructure and buildings, **reduced labor productivity, lower consumption and investment** and disruption to **global trade flows.**
    - **Extreme heat** and **flooding** are threatening key **apparel production hubs**, with four countries vital for fashion production at risk of **losing US$65 billion** in export earnings and **1 million potential jobs by 2030.**

- **Workplace Air Pollution:**
  - The financial implications of outdoor **air pollution**, which include impacts on **labor productivity**, health expenditures and **agricultural crop yields**, are projected to lead to **global economic costs** that gradually increase to **1% of global GDP by 2060.**
  - Global **air pollution** related healthcare costs are estimated to increase from **US$21 billion in 2015 to US$176 billion in 2060.**
- **Vector-Borne Diseases:**
  - Endemic **vector-borne disease** has been associated with substantial negative impacts on long-term economic development in many regions in **Africa and Asia and the Pacific.**
  - Certain macroeconomic studies have found that in highly endemic countries, **malaria** may be responsible for reducing economic growth by more than **one percentage point a year.**
- **Agrochemicals:**
  - It is estimated that 385 million cases of unintentional, acute **pesticide poisoning** (UAPP) occur annually and 44% of farmers are poisoned by **pesticides** every year.
  - Over 300,00 deaths annually are caused due to **pesticide poisoning.**

What are the Initiatives to Protect Workers and Workplaces at Global Level?

- **Japan:** In **Japan**, the prevention of **heatstroke** is one of the targeted outcomes of the **14th National Occupational Accident Prevention Plan 2023-27, with two specific indicators:**
  - **Increased number of establishments** addressing heat stress based on the Wet Bulb Globe Temperature (WBGT) value
  - Reduction of increased rate of **heatstroke death.**
- **Belgium:** The Belgian **National Plan of Action to Improve the Well-being of Workers 2022-27**, states that working in very high temperatures requires adjustments to be made to technical preventive measures (particularly **ventilation and heating**), the organization of work, and the PPE made available to workers.
- **France:** In France, the **National Plan for the Prevention of Serious and Fatal Injuries at Work 2022-25** identifies that the monitoring of mortality and serious injuries from **heat stress** is a key measure to improve knowledge and gain a better understanding of the circumstances in which serious and fatal heat-related injuries occur.
- **Spain:** The **Spanish Strategy for Safety and Health at Work 2023-27** lays out actions for the improvement and control of working conditions in activities most affected by environmental changes.
- **China**: Outdoor work must cease when air temperature **exceeds 40°C** (Administrative Measures on Heatstroke Prevention 2012).
- **South Africa:** Employers must take steps to mitigate **heat stress** if the average hourly WBGT exceeds 30°C.

What are Steps Taken by India to Protect Workers and Workplaces?

- The **Indian** National Disaster Management Authority, in collaboration with the **Ministry of Home Affairs**, published the **"National Guidelines for Preparation of Action Plan - Prevention and Management of Heat Wave"** to protect the Indian workforce in the face of heat extremes.
- These guidelines emphasize the importance of:
  - educating workers;
  - ensuring proper hydration;
  - regulating work schedules;
  - providing necessary medical facilities;
  - acclimatizing workers to high temperatures.
- It is recommended that **physically demanding jobs** should be rescheduled to **cooler times** of day, and the frequency and duration of **work breaks increased** during periods of extreme temperature.
- **Special attention** should be given to **pregnant workers** and workers with underlying **medical conditions.**
- Lastly, it is advised that workers wear **breathable, light-coloured clothing and hats,** or use umbrellas.
- As per **Factories Act, 1948,** the **wet bulb globe temperature (WBGT)** value should not

exceed 30°C in factory workrooms.

What are the Recomnedations of ILO?

- **Excessive Heat:**
  - Employers should, if practicable, **eliminate** the need for work in **hot conditions.**
  - The air may be **cooled by** evaporation, for example by **water sprays**, in addition to or instead of **ventilation.**
  - Employers should arrange a **work-rest cycle** for exposed workers, either in the workplace or in a cooler restroom**.**
- **Ultraviolet (UV) Radiation:**
  - Protect workers by appropriate **clothing and personal protection**, such as **sunscreen ointment** or lotions and **eye protection**, when necessary..
  - Minimize exposure of workers to the sun by organizing the **work** so that it can be carried out in the **shade.**
- **Extreme Weather Events:**
  - Employers should ensure that the necessary **information, internal communication and coordination** are provided to protect all people in the event of an **emergency at the worksite.**
  - Provide relevant **information and training** to all members in emergency **prevention, preparedness and response** procedures.
- **Workplace Air Pollution:**
  - Working environment shall be kept free from any hazard due to **air pollution**, **noise or vibration by technical measures** applied to new plant or processes in design or installation, or added to existing plant or processes.
- **Vector-Borne Diseases:**
  - Effective management of **biological hazards** in the working environment, the scope of which includes **biological vectors or transmitters of disease.**
- **Agrochemicals:**
  - Ensure that workers are not exposed to **chemicals** to an extent which exceeds **exposure limits.**
  - Choice of **chemicals and technology** that eliminate or minimize the risk.

Conclusion:

Climate change poses significant risks to workers globally, with outdoor workers facing heightened exposure to extreme temperatures and weather events. Initiatives by various countries, such as Japan, Belgium, and India, emphasize the importance of proactive measures to protect workers' health and well-being. International Labour Organization underscore the necessity of comprehensive strategies to mitigate the impacts of climate change on workplace safety and productivity.