



**Supporting Inclusive Resource Development (SIRD)  
East Africa  
TRAINING PROGRAM  
2019**



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# Risk Assessment

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## *Background*

- 2.3 million occupational health related deaths occur each year (WSH Institute)
- The “no harm” approach:
  - Occupation illnesses are preventable;
  - Repeat occurrences should not occur; and
  - Consistent and preventative standards are implemented
- Occupational illnesses have widespread negative impacts



# Agenda

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- Risk Assessment in Canada
- Occupational Health Risk Assessment (HRA)
- When to Conduct an HRA
- Steps in the HRA Process
  - *A Gender-Sensitive Approach*
- The Benefits of HRAs and Other Risk Assessment Models
- The Right to Refuse Unsafe Work



# Risk Assessment in Canada

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- Canada: *Canada Occupational Health and Safety Regulations* and the *Canada Labour Code*
- Ontario: *Regulation 854 – Mines and Mining Plants* under the *Occupational Health and Safety Act*



# Occupational Health Risk Assessment (HRA)

- International Council on Mining & Metals (ICMM)
- HRA = proactive and systemic approach to identifying, analyzing and controlling workplace health and safety hazards based on risk
- A collaborative process

**ICMM**  
International Council  
on Mining & Metals



# The Use of HRAs in the Extractive Sector

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- HRAs are complex due to the range and depth of the mining life cycle
- 4 Key Elements:
  1. Identification of hazards and their sources;
  2. Estimation of the potential for exposure and health effects;
  3. Quantification of exposures; and
  4. Assessment of risk through:
    - I. the use of specific techniques
    - II. the identification and evaluation of control effectiveness
- Goal = to implement measures to prevent the release of hazards and minimize the effects of hazards



# When to Conduct an HRA

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- Ontario: employers are required to conduct a risk assessment as often as necessary and at least annually
- ICMM recommends an HRA be conducted or reviewed in relation to:
  - All new routine and non-routine exploration, design and construction activities
  - Existing operations
  - Changes to existing activities
  - Following an incident



# Steps in the HRA Process - Identification

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## *Step 1: Identification of Issues*

- *A specialist team identifies hazards in the workplace, their sources and harmful effects*
- *Specific hazards and health risks affect workers in the mining industry:*
  - *Physical environment*
  - *Hazardous substances*
  - *Other adverse health effects*

## *Step 2: Identifying Potentially Exposed Individuals and Groups*

- *Workers can be grouped and assessed according to similar exposure levels based on:*
  - *Process or areas of work*
  - *Vulnerability to certain hazards*





# Women in Mining & Risk Assessment

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- Women under represented in global mining industry and under served in health and safety representation (International Finance Corporation, “Unlocking Opportunities for Women in Business”)
- A gender-sensitive approach is needed during risk assessment
  - Increased risk of musculoskeletal harm from machinery and tools
  - Safety risks associated with Personal Protective Equipment (PPE)





US astronaut Christine Koch was scheduled to take part in the first all-female spacewalk.

Photograph: Kirill Kudryavtsev/AFP/Getty Images

# Women in Mining & Risk Assessment

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- Increased mental health risks resulting from work conditions and traditional family responsibilities
- More susceptible to gender discrimination and sexual harassment



# Be an Active Bystander Be a *DIGGER!*

**D – DIRECT ACTION**

**I – INTERRUPT, DISRUPT OR DISTRACT**

**G – GET A COLLEAGUE OR ACTIVATE BYSTANDERS**

**G – GET AN AUTHORITY**

**E – ENGAGE THE TARGETED PERSON**

**R – RECORD AND REPORT**

*#MeTooMining*



# Steps in the HRA Process - Assessment

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*Step 3: Identify the Processes, Tasks and Areas Where Hazardous Exposures Could Occur*

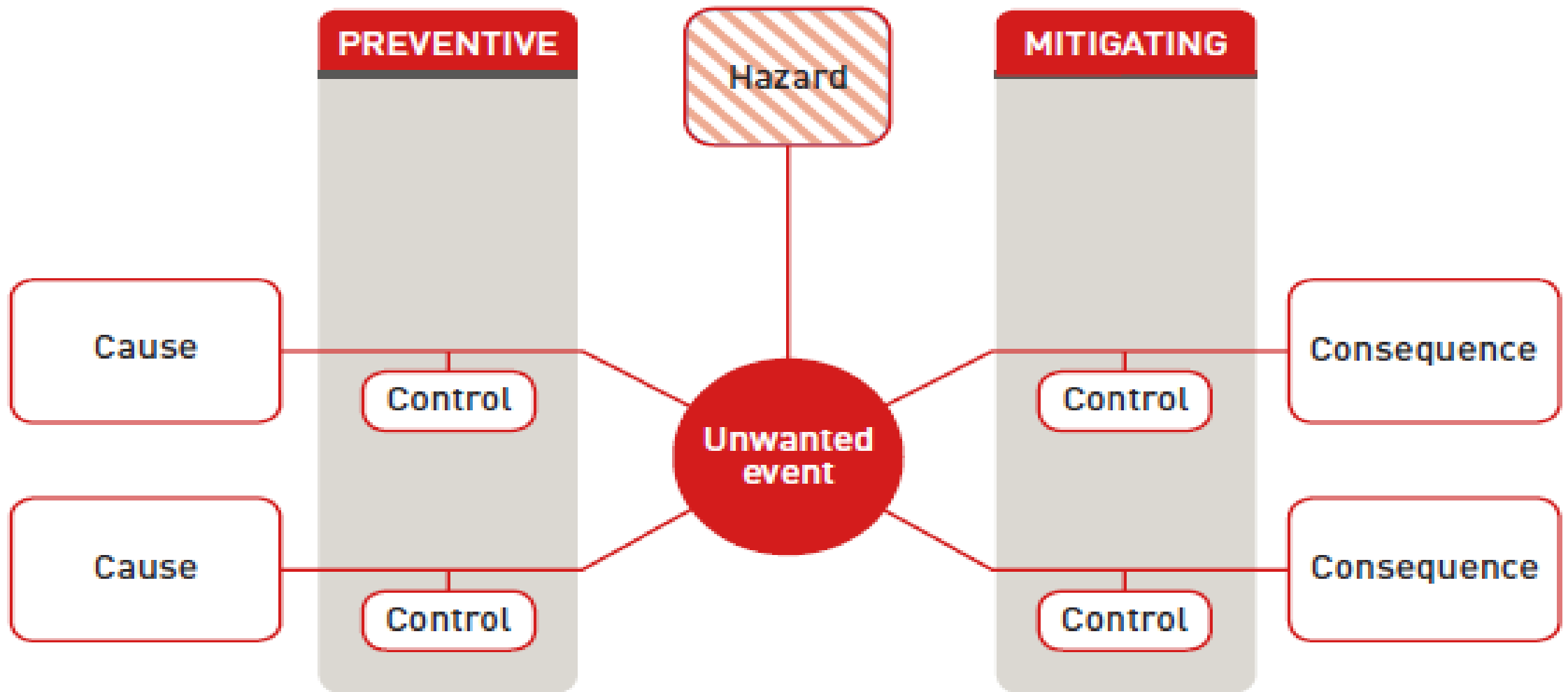
*Step 4: Assess, Measure and Verify Exposure Levels*

*Step 5: Assess the Potential Health Risks of the Hazardous Exposures*

*Step 6: Rate and Prioritize the Health Risks, Including the Identification of Potential Health MUEs*

*Step 7: Identify Existing Controls and Assess the Effectiveness of These Control Measures*





Bow-tie diagram depicting mitigating and preventative controls

Source: ICMM, "Good Practice Guidance on Occupational Health Risk Assessment – Second Edition", p. 38

# Steps in the HRA Process— Analysis and Reporting

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*Step 8: Establish a Risk and Controls Register*

*Step 9: Decide on Risk Acceptability and Set Priorities for Action*

*Step 10: Implement Corrective Action*

*Step 11: Timely Reinstatement of Controls if They Fail*

*Step 12: Maintain Accurate and Systematic Records of the HRA or Amend Existing Risk Control Action Plan and Use Alternative and/or Additional Control Measures*

*Step 13: Review and Amend at Regular Intervals or Earlier if Changes to Processes or New Developments are Proposed*



# The Benefits of HRAs & Other Risk Assessment Models

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- The Ontario Ministry of Labour has identified benefits of a formal risk-based approach:
  - Improved collection and management of data and metrics related to health and safety in the mining industry
  - Hazards are more likely to be identified and controls more likely to be implemented, reducing risks faced by workers





# The Right to Refuse Unsafe Work

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- A cornerstone of health and safety law in Canada
- Workers are empowered to refuse unsafe work without fear of repercussions
- The work refusal process:
  - An internal investigation is conducted
  - If the hazard is resolved, the worker returns to work
  - If the worker continues to refuse in good faith, a second investigation is conducted by a government actor
- The majority of work refusals are legitimate



# Key Takeaways

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- Canadian law requires employers to engage in risk assessment annually and whenever necessary
- Mining sector experts recommend the adoption of HRAs
- A gender-sensitive approach is needed during risk assessment
- HRAs require the commitment and collaboration of key stakeholders
- The right to refuse work is an essential component of risk assessment



# Resources

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- *Canada Occupational Health and Safety Regulations*, SOR/86-304.
- *Canada Labour Code*, RSC, 1985, c L-2.
- *Occupational Health and Safety Act*, RSO 1990 c 0.1.
- *Regulation 854 – Mines and Mining Plants*, RSO 1990, Reg 854.
- WSH Institute: [www.wsh-institute.sg](http://www.wsh-institute.sg)
- Me Too Mining Association: [www.metoomining.com](http://www.metoomining.com)
- International Finance Corporation: [www.ifc.org](http://www.ifc.org)
- International Council on Mining and Metals: [www.icmm.com](http://www.icmm.com)
- Women in Mining Canada: [www.wimcanada.org](http://www.wimcanada.org)
- Women in Mining – Toronto Branch: [www.women-in-mining.com](http://www.women-in-mining.com)
- The Guardian: [www.theguardian.com](http://www.theguardian.com)
- Mining Industry Human Resources Council: [www.mihr.ca](http://www.mihr.ca)



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