



# Climate Change – Risk Management for Solid Waste Facilities

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# What is Climate Readiness?

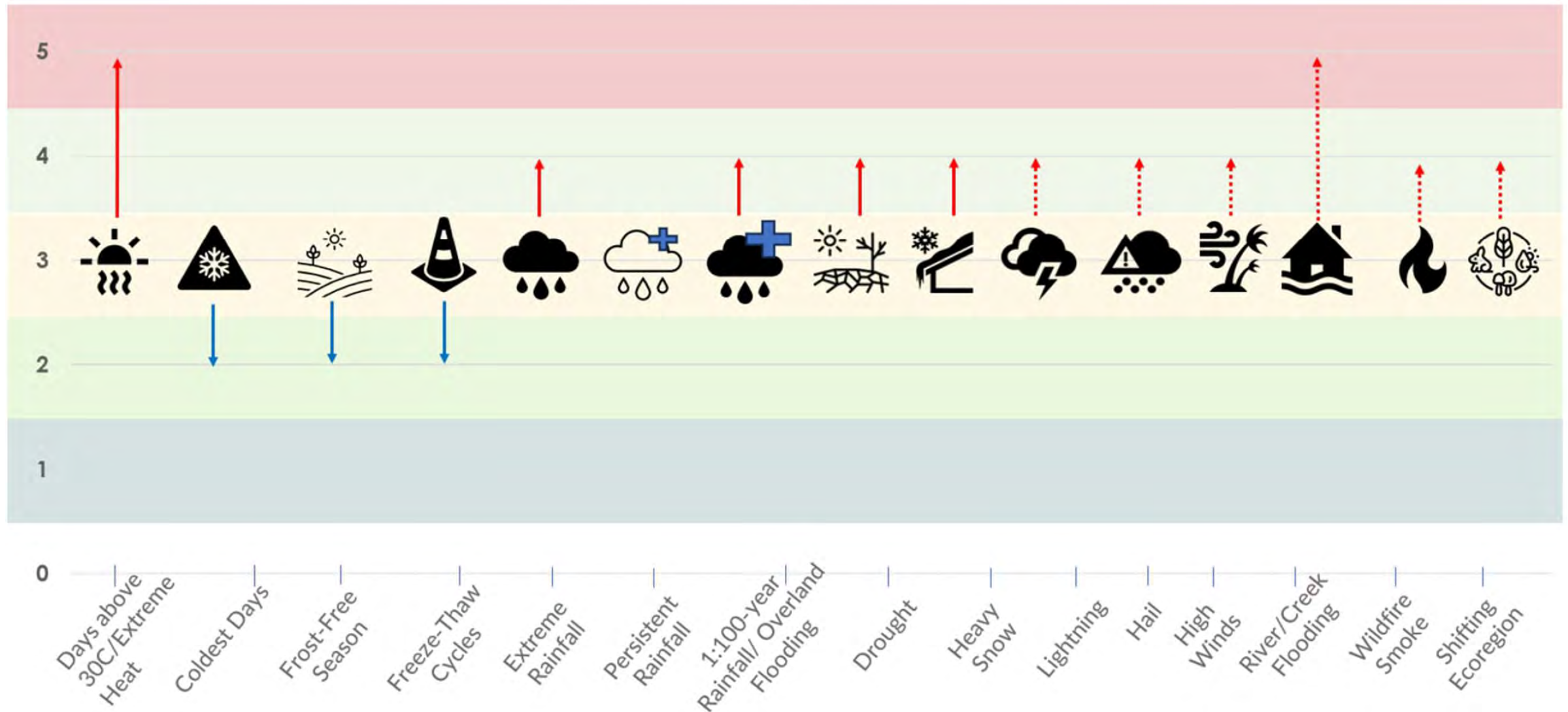
- Understanding how changing climate could impact solid waste management systems: built, social, natural environment, economics
- To be ready means...
  - Adapt
  - Robust
  - Faster recovery - return to normalcy

# Climate Change – How will this impact us?

- Operations
- Regulatory compliance
- Future development

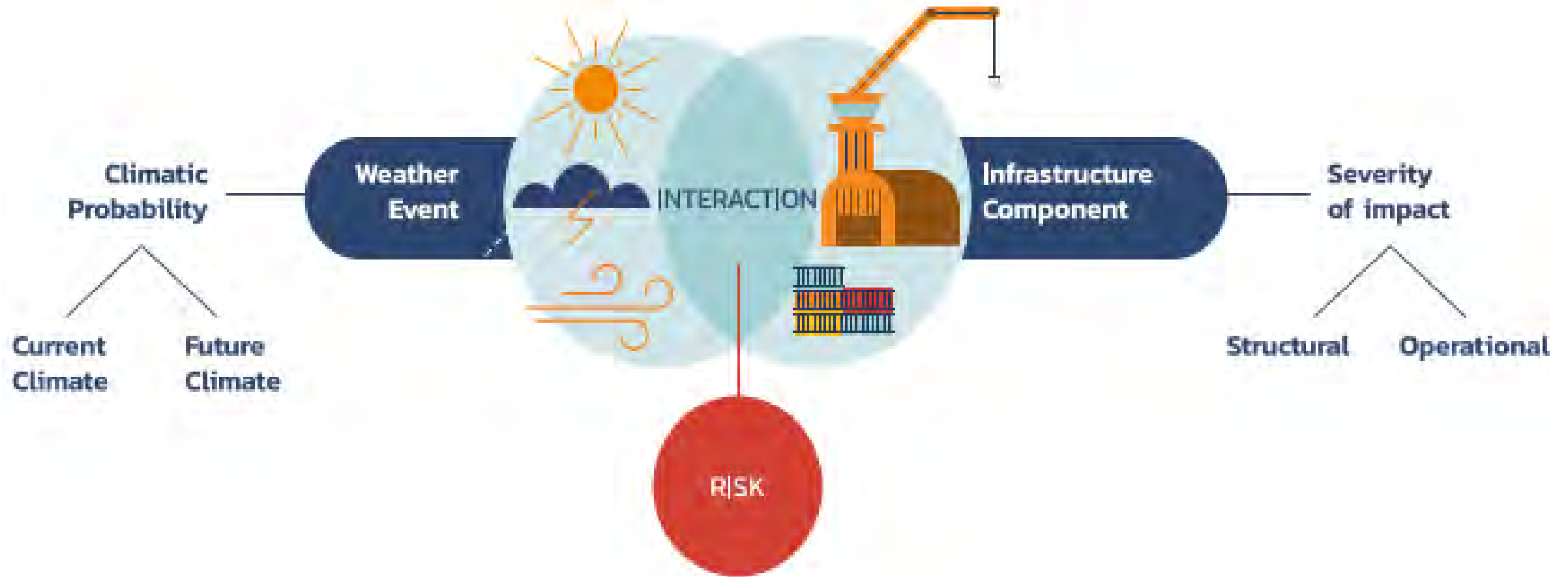


# Extreme Climate Parameters





# Risk Assessment is about...



# Initiating the conversation

# Clairmont Centre for Recycling and Waste Management

- ~6km North of City of Grande Prairie, AB
- Master Plan update from 2014
- Municipal solid waste from the County of Grande Prairie



# Master Plan Update Conversation



Let's look at  
the outline  
from 2014...

Since we're looking  
at operational risk,  
we should consider  
looking at climate  
risk, as well.

What  
climate risks  
would  
apply?



# Athabasca Regional Waste Management

- 56 km NW of Town of Athabasca, AB
- Municipal solid waste from the County
- The Town received funding from MCCAC to conduct a Climate Change Risk Assessment



# Town of Athabasca Conversation



The Town is doing  
a community  
wide climate risk  
assessment...

We'd like to  
invite you as a  
stakeholder to  
participate.

What kind of  
information are  
you looking  
for?

# Doing the Assessment

# Overall Scope of Risk Assessment

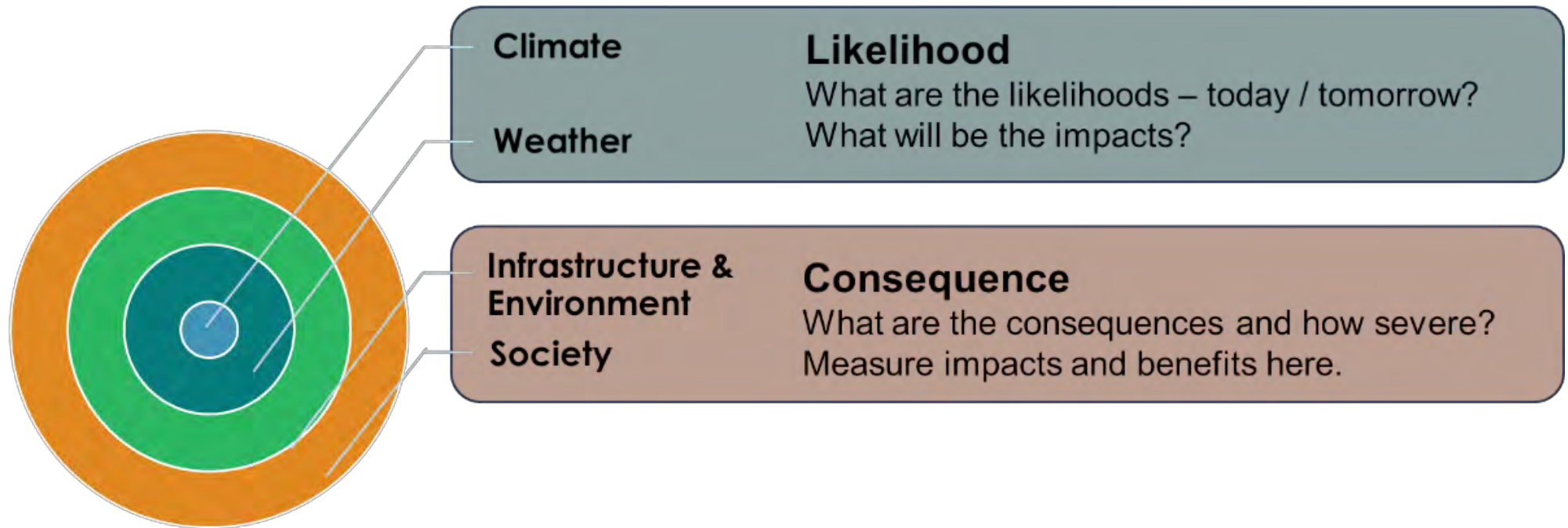


PIEVC – Public Infrastructure Engineering Vulnerability Committee, administered by Institute for Catastrophic Loss Reduction

- Using a High Level Screen Tool [PIEVC High Level Screening Guide – PIEVC Program](#)



# Risk Assessment





# Climate Change Vulnerability and Risk Assessment

Risk (R) is defined as the product of the Likelihood (L) of a climate event and the Consequence (C) of that event – should it occur.

| Risk = Likelihood x Consequence |
|---------------------------------|
| Low Risk                        |
| Medium Risk                     |
| High Risk                       |

|   |             |               |                              |                               |                      |                     |                           |                    |
|---|-------------|---------------|------------------------------|-------------------------------|----------------------|---------------------|---------------------------|--------------------|
| 5 | CONSEQUENCE | Catastrophic  | 0                            | 5                             | 10                   | 15                  | 20                        | 25                 |
| 4 |             | Major         | 0                            | 4                             | 8                    | 12                  | 16                        | 20                 |
| 3 |             | Moderate      | 0                            | 3                             | 6                    | 9                   | 12                        | 15                 |
| 2 |             | Minor         | 0                            | 2                             | 4                    | 6                   | 8                         | 10                 |
| 1 |             | Insignificant | 0                            | 1                             | 2                    | 3                   | 4                         | 5                  |
| 0 |             | No Effect     | 0                            | 0                             | 0                    | 0                   | 0                         | 0                  |
|   |             |               | Negligible<br>Not Applicable | Highly Unlikely<br>Improbable | Remotely<br>Possible | Possible Occasional | Somewhat<br>Likely Normal | Likely<br>Frequent |
|   |             |               | LIKELIHOOD                   |                               |                      |                     |                           |                    |
|   |             |               | 0                            | 1                             | 2                    | 3                   | 4                         | 5                  |

# Understanding Risk

|   |             |               |                           |                            |                   |                     |                        |                 |
|---|-------------|---------------|---------------------------|----------------------------|-------------------|---------------------|------------------------|-----------------|
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|   |             |               | LIKELIHOOD                |                            |                   |                     |                        |                 |
|   |             |               | 0                         | 1                          | 2                 | 3                   | 4                      | 5               |



# Charting the Results



- Prioritize and recommend adaptation measures

# Planning for future



~~Doom and Gloom~~

**Being Prepared  
&  
Improvement**

# Do better

- Update emergency plan
- Update operational plan
- Batteries disposal – garbage fire
- Waste cover
- Update health and safety plan
- Improve on stormwater drainage





# Money talks - Funding

## Canada Infrastructure Program (ICIP)

- Infrastructure development or renewal projects
- Meet the Climate Lens requirement
  - Climate risk and vulnerable assessment
  - Greenhouse gas inventory and reduction

## Green Municipal Fund – FCM

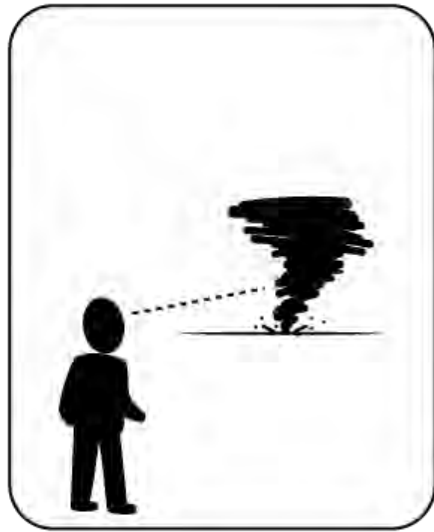
- Adaptation in action – feasibility study and implementation

# At the end of the day...

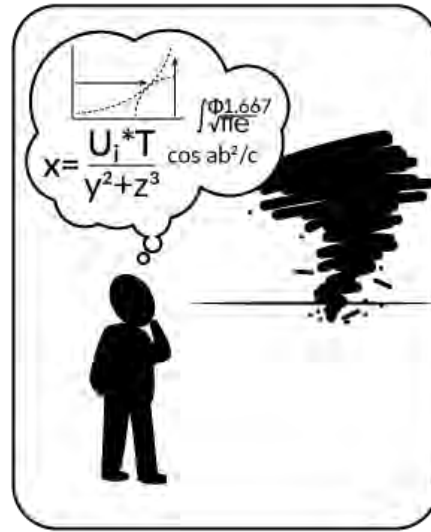
- Managing Risks



*Context*



*Identification*



*Analysis*



*Evaluation*



*Treatment (Action)*

# Take aways

- Know what “you” don’t know
- Help to understand the potential risks
- Tools are available to guide the assessment
- Initiate the conversation



Hey, have  
you thought  
about...



# Questions?

Contact Juliana Tang ([tangj@ae.ca](mailto:tangj@ae.ca))