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AIM network

Building Resilience

Proposal Writing for Climate Adaptation Projects

FEDERATION of PRINCE EDWARD ISLAND MUNICIPALITIES

Municipal Asset Management Program

This initiative is delivered through the Municipal Asset Management Program, which is delivered by the Federation of Canadian Municipalities and funded by the Government of Canada.

Who We Are

- A not-for-profit Community of Practice that provides training, education and technical assistance to advance the practice of asset management in Atlantic Canada

Introductions

Matt Delorme, P.Eng: Executive Director, AIM Network
Stephanie Arnold: Climate Services Specialist, CLIMAtlantic
Cassandra Gautreau, Climate Project Coordinator, CLIMAtlantic

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Workshop Agenda

Time	Topic
11:30	Purpose of workshop
11:35	What makes a good funding application?
11:40	PEI and national strategies
11:50	Funding opportunities
12:00	Climate vulnerability assessments and gap analysis
12:15	Workshop: Build your own funding plan
12:35	Questions and discussion

Purpose of Workshop

What is at greatest risk?

What are my resiliency options?

What resources do I have? What do I need?

What are costs of the project?

How will I support those costs?

Financing plan and funding application.

What makes a good funding application?

- Good data?
- Thorough project plan?
- Sound financing plan?
- Lots of detail?
- Secured project resources?
- High level of need?

MEET THE GOALS OF THE FUNDING ORGANIZATION

PEI Adaptation Strategy

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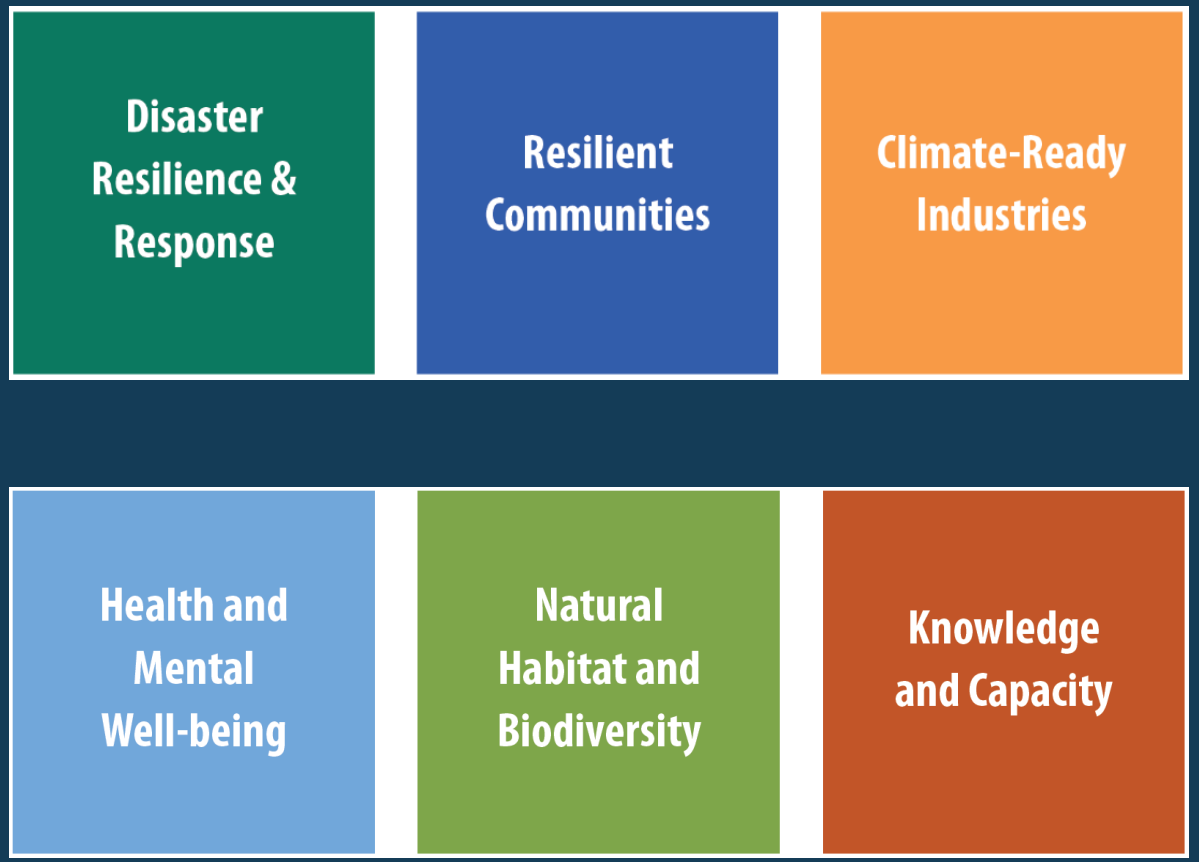
Guiding Principles

1. Achieve equitable outcomes
2. Leverage ways of knowing
3. Advance reconciliation
4. Work together
5. Be ambitious



National Adaptation Strategy

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Guiding Principles

1. Respect jurisdictions and uphold Indigenous rights
2. Advance equity and environmental justice
3. Take proactive, risk-based measures to reduce climate impacts before they occur
4. Maximize benefits and avoid maladaptation

Overview of Funding Opportunities

Provincial

- Disaster Response and Communications Equipment
- Generator Distribution
- Hurricane Fiona Recovery Fund (ACOA)

FCM

- Current Green Municipal Fund
- Green Municipal Fund 2024 – 2032
  - Climate and equity plans and processes
  - Feasibility studies, pilot projects, small capital projects
  - Adaptation capital financing

National

- Canada Community-Building Fund
- Disaster Mitigation Adaptation Fund (min $1M)
- Environmental Damages Fund

Regional

- Atlantic Canada Opportunities Agency

Federal Climate Lens

- Required for all federal projects, ICIP, DMAF and Smart Cities Challenge
- Not currently required for CCBF
- Both Adaptation and Mitigation
- Adaptation Requires professional sign off that process was followed
  - Scope and Context
  - Risk Identification
  - Risk Analysis
  - Risk Evaluation
  - Risk Treatment and ROI (Loss Avoided)

Methodologies to assess resilience consistent with ISO 31000:

- Public Infrastructure Engineering Vulnerability Committee (PIEVC) Protocol: https://pievc.ca/
- Envision: https://sustainableinfrastructure.org/envision/
- SuRe - The Standard for Sustainable and Resilient Infrastructure: http://www.gib-foundation.org/sure-standard/

Climate Vulnerability Assessments

Living with uncertainty

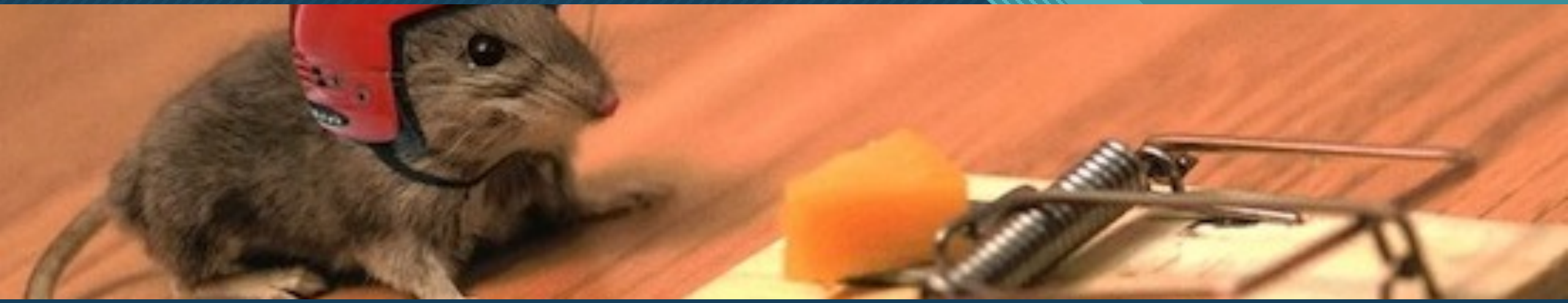
What is Risk?

- Exposure to danger, harm or loss
- Anything that threatens an organization's ability to deliver its intended services at target levels

Opportunity

- something unplanned that might happen that you could exploit to have a positive impact

Understanding Risk



Risk cannot be eliminated, only managed to an acceptable level

Quantifying Risk

- Probability of Failure (PoF)
- Consequence of Failure (CoF)
- Risk = [PoF] [CoF]

Ranks		Consequence				
		1	2	3	4	5
Probability	1	1	3	6	10	15
	2	2	5	9	14	19
	3	4	8	13	18	22
	4	7	12	17	21	24
	5	11	16	20	23	25

Where does risk fit in asset management?

- Three parts to priorities:
- Level of Service
  - Do we provide the quantity and quality of services needed?
- Risk
  - How likely is it that my services will be disrupted?
- Cost
  - Can I afford my risk and level of service targets?

ACTIVITY

Climate Lens: Introduction to PIEVC

Scope, Context and Criteria

Scope

- What am I assessing?
- What climate events are of concern?
- Social considerations, economic inequity risks

Context

- Internal or external factors?

Criteria

- Life of infrastructure?
- Climate projections?
- Design events?

Climate Events (Risk Identification)

Climate Events	Infrastructure Threshold Parameters
Temperature	Rate of Change
	Mean Values
	Extremes
	High Summer
	Low Winter
Precipitation as Rain	Frequency (one-day, short duration <24 hours, multi-day)
	Total annual/seasonal precipitation and rain
	Intensity of rain events
	Proportion of annual and seasonal precipitation as rainfall
	Drought Conditions
Wind Speed	Mean Values (one hour mean winds)
	Monthly
	Seasonal
	Annual
	Extremes/gusts
	Thunderstorm winds
	General wind patterns/gradients
Hydrology	Winter water flow in creeks and ponds
	Change in Groundwater Table

Response Considerations (Risk Analysis)

Infrastructure Response Considerations	
Structural Design	Safety
	Load carrying capacity
	Fatigue
	Serviceability
	Deflection
	Cracking and deterioration
	Foundation Design considerations
Functionality	Level of Service, Serviceability, Reliability
	Level of Effective Capacity
	Short term
	Medium term
	Long term
	Equipment - Component selection, design, process and capacity considerations

Infrastructure Response Considerations	
Watershed, Surface Water, and Groundwater	Erosion along streams, rivers, and ditches
	Erosion scour of associated or supporting earthworks
	Sediment transport and sedimentation
	Channel realignment / meandering
	Change in water quantity
	Slope stability
Operations, Maintenance, and Materials Performance	Structural aspects
	Functionality & Effective Capacity
	Materials Performance (changes over time from design expectation)
	Pavement Aspects (i.e. hail, softening, cracking from freeze thaw and other causes)
Emergency Response	Storm
	Flood
	Ice
	Water damage
Insurance Considerations	
Policy Considerations	Codes
	Public sector policy
	Land use planning documents Guidelines
Social Effects	

Risk Evaluation

Risk Assessment Spreadsheet

Infrastructure Components	Infrastructure Response Considerations										Potential Climate Events and Change Factors																													
											Temperature								Rain								Snow / Storm				Wind Speed				Fog			
	Structural Design	Functionality	Watershed, Surface Water, Groundwater	Operations, Maintenance	Emergency Response	Insurance Considerations	Policy Guidelines & Standards	Social Effects	Public Health & Safety	Environmental Effect	High				Low				Freeze/Thaw				Extreme Rainfall Intensity over One Day				Magnitude of Severe Storm Driven Peak Flows				Frequency of Severe Storm Driven Peak Flows				Rain on Snow				Snow Accumulation				High Wind / Downburst				Limited Visibility			
Drainage											Y/N	L	C	R	Y/N	L	C	R	Y/N	L	C	R	Y/N	L	C	R	Y/N	L	C	R	Y/N	L	C	R	Y/N	L	C	R	Y/N	L	C	R	Y/N	L	C	R
Culverts < 3m		✓	✓	✓	✓		?					5	3	15		3				3				4				4				4				3				3											
Culverts ≥ 3m	✓	✓	✓	✓	✓		?					5				3				3				4				4				4				3				3											
Bridges	✓	✓	✓	✓	✓		?					5				3				3				4				4				4				3				3											
Ditches		✓	✓	✓			?					5				3				3				4				4				4				3				3											
Catch Basins		✓	✓	✓			?					5				3				3				4				4				4				3				3											
Debris Torrent Management (Inc Protective Works)		✓	✓	✓	✓		?					5				3				3				4				4				4				3				3											

Gap Analysis

- Project workplan and funding stream
- National Adaptation Strategy Pillars
- Assign internal resources:
  - Project management
  - Application writing
  - Coordination of resources
- Assign external resources
  - Consultants
  - Contractors
- Develop Timeline

Generate Roadmap

- What services are risk?
- What assets support that service?
- What is my risk timeline?
- What is an appropriate funding stream?
- When is the funding deadline?
- Do I need more information?
  - Feasibilty
  - Pilot
  - Capital Project
- Assign responsibilities

FCM Survey

https://www.surveymonkey.com/r/AIMNETABACT4

Partner Organization: AIM