Best Practices for Addressing Climate Change Risks

Philip Byer
University of Toronto

Erik Sparling, Simon Eng and Heather Auld
Risk Sciences International, Ottawa, Canada

Caroline Rodgers and Al Douglas
Ontario Centre for Climate Impacts and Adaption Resources
Two recent activities:

“Assessing the Treatment of Climate Change Impacts and Adaptation in Project-Level EAs in the Canadian Mining Sector,” Project for Canadian Government, 2014
Mines and Climate Change

• GHG emissions from mine operations

• Impacts of mine on environment under new climate conditions

• Impacts of climate change on mine and resulting impacts on environment

• Need for each phase of mine project
Some **Key Findings** from Canadian Mine EA Project

- Climate change not *explicitly* addressed in most EAs
- No clearly structured process to prioritize issues
- Consultation & review processes prominent drivers for addressing climate change

When climate change was addressed:

- Little documentation on use of climate information in decision-making
- Inconsistent climate analyses within individual EAs
Key Findings cont’d:

• Adaptive & emergency management were main climate change risk reduction measures

BUT... little or no descriptions of

• Adaptive methods to be implemented or “trigger” levels for implementation

• Basis on which decisions were made about adaptive management
Best Practices developed for:

• Effects of climate change on baseline environment
• Impacts of project on the environment
• Impacts of environment on the project due to climate change (vulnerability of the project components) and related consequences
• Monitoring and management plan
Detailed Best Practice Steps:

Effects of climate change on baseline environment

• **Scope** VECs that could be affected
• Preliminary *vulnerability* assessment of VECs
• Redefine *baseline* conditions
• Explain and justify *methodologies*
• Describe *uncertainties* and confidence in estimates
Detailed Best Practice Steps cont’d:

Impacts of project on the environment

- **Scope** how climate change may affect impacts on VECs
- Preliminary *climate change assessment*
- Assess *impacts* relative to refined baseline
- Identify, evaluate and select *adaptation* options
- Explain and justify *methodologies*
- Describe *uncertainties* and confidence in estimates
Detailed Best Practice Steps cont’d:

Impacts of environment on the project

• **Scope** project components that may be affected
• Preliminary **vulnerability** and risk assessment
• Assess **impacts** on the project and potential consequences
• Identify, evaluate and select **adaptation** options
• Rationalize **methodologies** used: choice of models, methods, data, assumptions
• Describe **uncertainties** and confidence in estimates
Detailed Best Practice Steps cont’d:

Monitoring and management plan

• Describe measures to monitor, evaluate, manage and communicate future changes
Key Points for Best Practices:

Scoping:
• Carefully screen and prioritize issues for climate change assessments

Technical expertise and climate data:
• Use best available climate projections and climate models and their outputs for the various climate parameters

• Acknowledge and address uncertainties about climate change
Key Points for Best Practices cont’d:

Adaptation:

• Evaluate adaptation options and provide rationale for decisions

• Provide adaptive management plan with monitoring for climate change
Challenges for EA Practitioners:

Poor accessibility to (or lack of):

• Technical expertise in climate and climate change

• Climate data and models

• Expertise in use of climate information in decision-making
Also need:

- Detailed regulations and guidance on how to address climate change in impact assessments
  - Effects of climate change on the baseline environment
  - Impacts of the project on the environment
  - Impacts of the environment on the project due to climate change
  - Monitoring and management of climate change-related impacts and risks
IAIA Publications and Resources:


Mining Climate Change Adaptation
Canadian Experience
Sean Capstick, Golder Associates

Climate Change Webinar
March 24, 2015

Organized by the
International Association of Impact Assessment

http://www.iaia.org/training/webinars.aspx