Lessons Learned from:
Algo Centre Mall Collapse
Charbonneau Commission
Mount Polley Tailings Storage Facility Breach

Chris Roney, FEC, P.Eng., Task Force Chair
May 21, 2015

Lessons Learned Task Force

“Many times what we perceive as an error or failure is actually a gift. And eventually we find that lessons learned from that discouraging experience prove to be of great worth.”

Richelle E. Goodrich
Mandate

The Task Force was asked to identify the opportunities from the Charbonneau Commission, Elliot Lake Mall failure and the Mount Polley failures for Engineers Canada to take a lead role in the development of means for constituent associations to:

- strengthen their ability to regulate the practice of engineering,
- govern individuals and organizations, and
- ensure that the public is aware that engineers meet high standards, practise with competence and integrity, and that their work and self-regulation benefits society.

Task Force

- Chris Roney, Director (Task Force chair)
- Stéphane Bilodeau, Director
- Ann English, CEO, APEGBC
- Malcolm Symonds, Advisor to the Board (chair QB)
- Kim Allen, Advisor to the Board (CEO)
Background

Algo Centre Mall Collapse
The Collapse

Photo credit: OPP

The Collapse

Photo credit: NGRI
The Real Story

“Though it was rust that defeated the structure of the Algo Mall, the real story behind the collapse is one of human, not material, failure.”

(Paul R. Bélanger)
Elliot Lake: How could so many engineers be so wrong?

Deadly Elliot Lake mall collapse was a failure of the ‘engineering profession of Ontario,’ Inquiry hears
Commission Charbonneau
Collusion and Corruption in the Construction Industry

Stéphane Bilodeau

The Charbonneau Commission in short…

Created in November 2011 and began its work in May 2012

Mandate

1. Investigate on
   – the existence of collusion and corruption schemes
   – the possible connections with political party funding
   – potential infiltration activities by organized crime

2. Propose potential solutions and make recommendations
   – on identifying, stopping and preventing collusion, corruption and infiltration by organized crime
The Charbonneau Commission in short…

Findings to date
Construction contractors and consulting engineering firms have rigged competitive bidding processes through a system of collusion

- Complacent municipal officers accepted kickbacks to make it even easier for them
- Percentages of the value of the construction contracts were paid to
  - the mafia
  - political party organizers
  - municipal elected officials and civil servants

The Charbonneau Commission in short…

- Individuals concerned by the testimonials
  - More than 100 engineers mainly employed by the City of Montreal, Laval, Quebec City, etc. consulting engineering firms and construction contractors
  - Construction contractors
  - Building trades unions
  - Municipal elected officials and political parties
  - Provincial political parties
September 2009 - March 2010: Countless media reports exposed the links between the construction industry, political party funding and organized crime.
THE BREACH

- Catastrophic failure Aug 2014
- Immediately 100 highest risk dams ordered inspected
- Independent Engineering Review Panel established

NASA aerial photos of the Mount Polley Mine site before and after the dam breach

July 24, 2014

August 4, 2014
DESIGN AND FAILURE MODE

PANEL RECOMMENDATIONS

1) Implement best available technology for tailings storage
2) Improve corporate governance
3) Expand design level commitments for permitting
4) Increase use of independent tailings review oversight boards
5) Strengthen regulatory operations
6) APEGBC to develop guidelines for improved site characterization
7) Improve Dam Safety guidelines
Key Lessons

• Weaknesses:
  – Ethics and Professionalism
  – Ability to regulate organizations
  – Assurance of the expertise of our members

• Importance:
  – Communications
  – Swift response to public events
  – Standards and Guidelines
Opportunities

• Opportunities to enhance:
  – Governing Organizations and Individuals
  – Regulatory excellence and public confidence
  – Framework for Regulation
  – Standards, Guidelines, Practices and Systems
  – Communications

• Bonus Recommendations
• Opportunities to strengthen the Ends

Governing Organizations

• Regulation of firms would enhance the regulation of engineering and would address the public’s expectations

• Not all Constituent Associations have the authority to regulate firms

• Expectation that business practices are the responsibility of the regulator
Governing Individuals

- Weaknesses in ethical behaviour
- Weaknesses in the level of technical knowledge necessary
- Self-declaration of area of specialization
- Poor quality of engineering work
- Reactive, not pro-active regulation

Governing Individuals

- Enhance knowledge and enforcement of the Code of Ethics
- Establish mandatory CPD requirements
  - ethics and professionalism
  - duty to report
- Strengthen regulation of specialties within engineering
Standards & Guidelines

- Establish the expectations of what a reasonable and prudent practitioner would do
- Makes clear what a practitioner’s obligations are
- Identify potential matters to consider and codes, standards and regulations that apply
- Provides examples of best practices
- Public can better understand what they may expect

Recommendations

Opportunities that facilitate regulatory excellence and public confidence
Mandate

Identify opportunities to enhance:
• the framework for regulation,
• standards, guidelines, practices, systems, and
• communications that facilitate regulatory excellence and public confidence.

Opportunities to strengthen the Ends.

Recommendations

Opportunities to enhance the Framework for Regulation
Framework for Regulation

New Elements

• Specialists and other designations to enhance servicing the public interest
• Enhanced Regulatory Tools
  – Practice Inspections
  – Registrar’s Investigations
  – Public Registers
• Role of standards and guidelines
  – Establishing, maintaining and verifying use by practitioners

Framework for Regulation

Duties in the Act

• Requirement to collaborate and sharing of evidence with public authorities without subpoena
• Duty to conduct public hearing, the requirement public notices of hearing and publish findings
Framework for Regulation
Authorities in the Act

- Ability to govern firms
- Authority to disclose that investigations are underway
- Authority to take action in the public interest even before investigations are complete
- Whistleblower protection
- Ability to identify and notify those who may be at risk when there is a finding of professional misconduct or incompetence

Recommendations
Opportunities to enhance
Standards, Guidelines, Practices and Systems
Standards & Guidelines

- Guidelines and/or Standards should be established in key areas of professional engineering practice
- There is an obligation to keep the guidelines current
- Engineers Canada role:
  - Develop, and maintain currency of, model guidelines and standards (QB already does this)
  - Maintain a central repository for provincially/territorially developed guidelines
  - Research and maintain a central repository of international guidelines and standards

Recommendations

Opportunities to enhance Communications
Communications

• Have a plan in place
• Must be seen to be acknowledging the problem and taking action
• Can’t be perceived as protecting your members over the public
• Opportunity to educate the public

Communications

Key Messages

• If it appears that engineering may be to blame, it’s better to acknowledge that possibility
• Work to be part of the solution
• Reassure the public
• Educate
Communications

Key Stakeholders

• Government
• Media
• Public
• Our members
• Our Councils
• Engineers Canada
Bonus
Opportunity for meaningful Act changes

- A high profile event may motivate government to revise our Acts
  - Be prepared to have materials ready for Act changes and seize the opportunity to piggy-back other items
  - Don’t let the limitations of your existing Act constrain you.

Bonus
Lessons Learned

- A protocol for regulators to use “lessons learned” for the ongoing strengthening of its systems and to strengthen the national framework
  - Discipline matters, complaint files, practice reviews
- Could feed into CPD or regulatory framework.
Recommendations

Opportunities to strengthen the Ends

E-1 REGULATORY EXCELLENCE

Proposed change to E-1:

- A current framework, standards, practices and systems and a means to effectively transfer knowledge to facilitate regulatory excellence and consistency are available to the constituent associations. This is highest priority among Ends and shall be allocated no less than 40 percent of the operational budget.
Ends
E-2 CONFIDENCE IN THE PROFESSION

- Members of the profession are an important part of the communications team
- Add a sub-End to reflect that Engineers Canada has a role to keep the constituent associations informed regarding matters in the profession, a clearing house for information.
- Add-sub-End to monitor public confidence and public expectations of the regulators

Ends
E-3 SUSTAINABILITY OF THE PROFESSION

- Add the stakeholders have information regarding how engineering is practiced in Canada

E-3 Stakeholders have information regarding how engineering is practiced in Canada and engineering is recognized as an attractive profession. This End shall be allocated between 15 and 25 percent of the overall resources.
Resource Page

Reports from Constituent Association

- PEO’s submission
- OIQ’s submission
- APEGBC submission

Links to public report

- https://www.mountpolleyreviewpanel.ca/
- https://www.ceic.gouv.qc.ca/

Thank you

For more information:
kim.allen@engineerscanada.ca | 613.232.2474
engineerscanada.ca