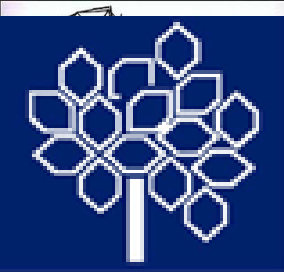


# Sustainable Development

- Capacity Building and Sustainability in the Engineering
- D. Danyluk, FEC, FCAE ,FEIC, FCSCE P.Eng.,
- Vice-President, WFEO
- Committee on Engineering and the Environment



Canada 



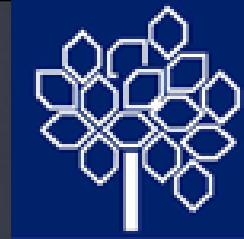


# World Federation of Engineering Organizations (WFEO)

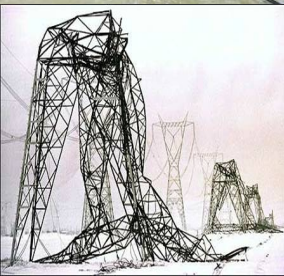
- International non-government organization for the world engineering profession (15 million engineers in over 90 countries)
- Nine standing committees including Engineering and the Environment\*, Energy, Disaster Risk Management, Capacity Building, Women, Youth, Anti-corruption, Education, Technology, I Tech
  - Mining and Sustainability Task Group
  - Agriculture and Engineering Task Group
  - Adaptation to Changing Climate
  - Mitigation Strategies (Future Climate- Engineering Solutions)
  - Sustainable Development Guidelines
- UNFCCC, UNESCO, UN-CSD (Rio + 20)



# UN Sustainable Development Goals



- RIO+20
  - Refocused the UNCSD
  - Identified gap between Engineering, Science and UN Entities
  - Started Transition from MDG's to SDG's
- Sustainable Development Goals
  - For post 2015
  - Extensive consultations with broadened input from Civil Society on structure, and communications
  - WFEO UN Relations Committee,
    - co-leader of Scientific and Technological Major Group
    - With ICSU, ISSC





# WFEO's Perspective on Capacity Building /Sustainability

- There is a strong correlation between:
  - critical mass of educated and skilled engineering and science graduates and economic and social development.
- That stronger efforts are required to develop and build:
  - engineering and scientific capacity at the “local” level and
  - strengthened informed decision-making capacity in developing nations at all levels

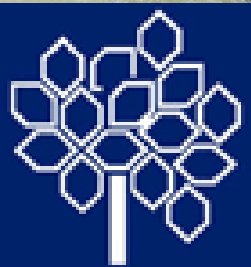




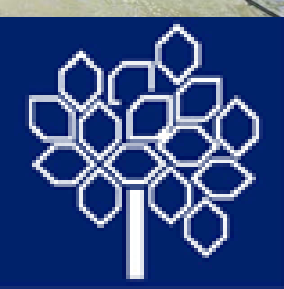
# WFEO's Perspective (con't)



- “That the building of human, institutional, and infrastructure capacities will help societies develop secure, stable, and sustainable economies, governments, and other institutions” This can be achieved by:
  - Mentoring, training, educating,, and most importantly, instilling the motivation and inspiration of people to improve their lives,
  - And by focussing on maximizing life cycles of physical, social and economic infrastructures in collaboration with all stakeholders”
- And that with the infusion of financial and support resources it will create the environment for improving societies quality of life



# WFEO's Guide Book and Compendium



WFEO decided that the most suitable way to realise Sustainability would be by embarking on various Capacity Building initiatives, one of them being the production of a:

- **"Guidebook for capacity building in the engineering environment"** and
- an associated **Compendium of programmes** and initiatives to implement action
- It is a detailed guidebook encompassing 112 pages and although focussed on engineering is relevant to all sectors



# Guidebook Purpose

It's purpose to :

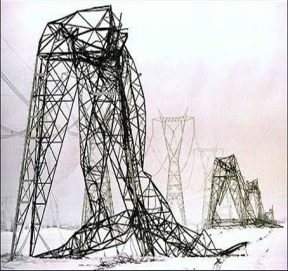
- Compile the accumulated knowledge and experience, in a summarised, filtered and analysed format. (It is not a best practice guidebook but compilation of good practices)
- Share lessons learned in one nation with others.
- Assist those undertaking capacity building activities that are isolated from support systems



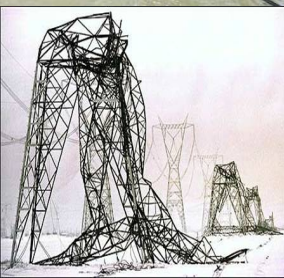


# Impact of a Changing Climate

- The owners of public and private infrastructures who currently manage, plan, design, operate and maintain civil infrastructure are central to infrastructure adaptation and sustainability to ensure society has the best infrastructure systems that they can afford.
- They have a legal responsibility to do so.







## Attention to Climate Change Adaptation

**TORYS**  
LLP

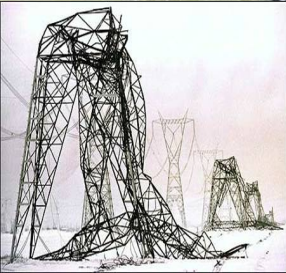
- Has surfaced as the key issue in 2011 and 2012
- Question of legal liability as a driver/barrier examined by Torys LLP for National Round Table on the Environment and Economy — report published in April 2008
- We concluded that the prospect of legal liability for those integrally connected with infrastructure ownership, planning, design, development and operation should be regarded as a significant driver of climate change adaptation
  - > This driver has inherent limitations, including evidentiary issues, defences and other bars to liability



# International Code of Practice for Sustainable Development and Environmental Stewardship

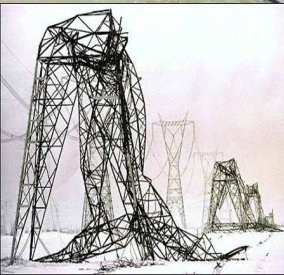
**“Think Global and Act Local”**

**Sustainable development will be  
achieved when all decisions and  
actions at the local level have  
sustainability embedded into the  
processes and actions**





# The Ten Principles for Sustainability



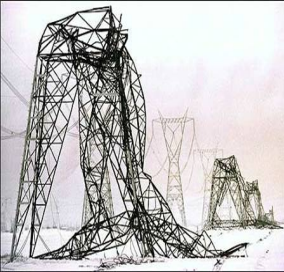
1. Maintain a current level of awareness and understanding of environmental stewardship, sustainability principles and issues related to your field of practice.
2. Use expertise of others in the areas where your own knowledge is not adequate to address environmental and sustainability issues.



# “The Ten Principles”2

3. Recognize global, regional, indigenous and local societal values applicable to your work, including local and community concerns, quality of life and other social concerns related to environmental impact along with traditional and cultural values.

4. Commit to sustainability outcomes at the earliest possible stage employing applicable standards and criteria related to sustainability and the environment.

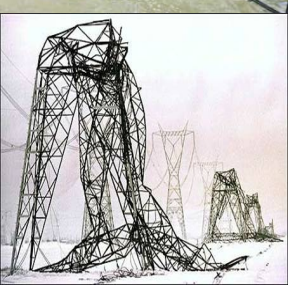




# “The Ten Principles”<sup>3</sup>

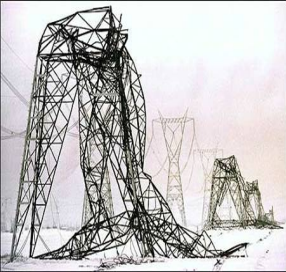
5. Consider the costs and benefits of environmental protection, eco-system components and sustainability in evaluating the economic viability of the work.

6. Integrate environmental stewardship and sustainability planning into the life-cycle planning and management of activities that impact the environment, and endeavour to implement efficient, sustainable solutions.





# “The Ten Principles”<sup>4</sup>



7. Seek innovations that recognize environmental, social and economic factors while contributing to healthy surroundings in both the built and natural environment.

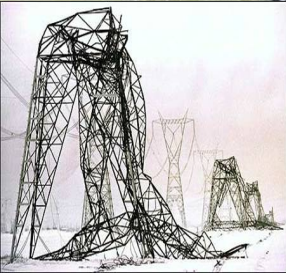
8. Develop locally appropriate engagement processes for stakeholders, both external and internal, to solicit their input in an open and transparent manner, and commit to respond to environmental concerns in a timely fashion in ways that are consistent with the scope of your assignment. Disclose information necessary to protect public safety to the appropriate authorities.



# “The Ten Principles”<sup>5</sup>

9. Ensure that projects comply with regulatory and legal requirements and endeavour to exceed or better them by striving toward the application of best available, economically viable methodologies, technologies and procedures for stakeholders.

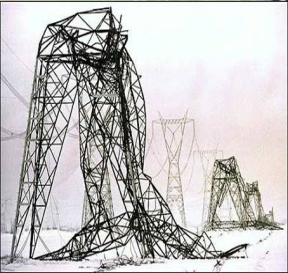
10. Where there are threats of serious or irreversible damage but scientific certainty is lacking, implement “no regrets” risk mitigation measures in time to minimize environmental degradation.





# Wrap Up

- Our knowledge of the earth's evolution is limited and as the globe's population grows towards 9 billion the challenges engineers face in maintaining and delivering sustainable, resilient and climate proof infrastructures are formidable.
- To address these challenges engineers must continue to conceive innovative solutions, tools and techniques,
- Engineers are the instruments for a sustainable future and the infrastructures to support the quality of life of that future will be conceived in the minds of engineers.







# Questions?

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