



If it can't be grown...





# WFEO Committee on Engineering and the Environment

Task Force on Sustainability and  
Mining

Paris 2014

- Who are we? Where do we fit in?
- A few words about our landscape
- Our members and our structure
- Our Goals and Objectives
- What have we done so far
- Our future plan
- What do we see as our key opportunities?



## Who Are We?

- AAES : American Association of Engineering Societies is a National member of WFEO
- AIME : American Institute of Mining, Metallurgical and Petroleum Engineers is an active member of AAES
- SME : Society for Mining, Metallurgy and Exploration is a member society of AIME



# Where do we fit in?

- SME: International Professional Society with 15,500 members in over 100 countries
- Mining and Exploration, Minerals and Materials Processing, Coal and Energy, Industrial Minerals, Underground Construction, Environmental
- Members: Mining Engineers, Geologists, Educators, Students, Regulators and Operators



# SME

## Our Landscape





# Our Landscape

- What cannot be grown must be mined
- Haunted by past industry practices
- Essential for society's advancement and economic development - necessary evil



## Our Landscape (cont.)

- Capital intensive, technology intensive, energy intensive
- Broad spectrum of locations
  - Remote, challenging terrains (metal, coal, indust. min.)
  - Close to urban areas/markets (aggregates)
- Broad spectrum of sizes
  - Giant multinationals
  - Family owned to regional operations





## Our Landscape (cont.)

- Mining is everywhere, in every nation, on every populated continent
- Mining is the backbone of a vibrant industrial economy
- It is a perfect challenge for engineers



## Our Landscape (Cont.)

- Conflict Minerals
- Illegal Mining
- Divergent Views on Value Derived from Mining
- Resource Nationalism



# Our Task Group

- 2011....Darrell Danyluk contacted SME and suggested that we join forces with WFEO and the CEE to address sustainability and mining
- 2012.... our strategic plan was accepted by the Chair of CEE
- 2013.... TF's activities were highlighted during two sessions at SDIMI in Milos, Greece. CEE Chair Danyluk attended.
- 2014.....Capacity Building workshop in Johannesburg and outreach seminar in Vietnam.

- Core group from SME serves central steering functions of TF
  - Nikhil Trivedi, Chair - engineer with industry perspective
  - Dr. Jessica Kogel – global mining perspective
  - Dr. Deborah Shields, Colorado State University – an educator who provides SD contacts worldwide
  - Carol Russell, U.S. Environmental Protection Agency – regulator's perspective
  - John Hayden, SME staff liaison

## Our Structure (cont.)

- 32 Task group members are at-large from
- 19 countries with economies tied to mining
  - Balance between developed and developing economies
  - Balance between academia and operational engineers
- Fluid group, flexible
  - Open to new representatives from task force countries
  - Open to new countries joining task force

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## Africa



3 members from  
Ghana



1 member  
from Zambia



3 members  
from South  
Africa



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## Asia



1 member  
from India

1 member  
from China



1 member  
from Turkey

1 member  
from Vietnam





- 1 member from Queensland
- 1 member from New South Wales

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## Europe

Political Map of Europe



- 1 member from Spain
- 2 members from Germany
- 3 members from Greece
- 2 members from Finland
- 1 member from Italy
- 1 member from Belgium
- 1 member from Slovenia



- 1 member from Mexico
- 2 members from Canada
- 4 members from the U.S.

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## South America



- 1 member from Chile



# Task Group Membership

- Australia (2)
- Belgium
- Canada (2)
- Chile
- China
- Finland (2)
- Germany (2)
- Ghana (3)
- Greece (3)
- India
- Italy
- Mexico
- Slovenia
- South Africa (3)
- Spain
- Turkey
- United States (4)
- Vietnam
- Zambia





# Communication

- We have a community bulletin board on the SME website .... [www.smenet.org](http://www.smenet.org)
- International telephone calls with TG members
  - Time zone challenges
  - Connectivity challenges





# SME

## Our Goals and Objectives



# Our Over Arching Goal

**Capacity building** for mineral producers, and stakeholders, including authorities, non-governmental organizations, and the general public.



# Mission/Purpose

To raise global understanding and application of engineering approaches and technologies so as to increase the contributions of the mining and minerals industries to economic, social and environmental wellbeing, and sustainable development.



STATUS



## Status (continued)

- Scope narrowed to small to medium size mining companies
- Preference to Africa, Asia and South America
- Five Thematic Concentration Areas



# Status (continued)

## Five Thematic Concentration Areas

- Environmentally sound engineering practices and technologies,
- Best practices in social sustainability and responsibility including worker health, safety, reliability and training,
- Best practices in eco-efficient use of land, water, energy, and mineral resources,
- Engineering solutions to reuse, recycle and repurpose mineral materials,
- Risk analysis, mitigation and management techniques

# SME

The logo consists of the letters 'SME' in a bold, blue, sans-serif font. A thick, green, curved swoosh underline starts under the 'S', passes under the 'M', and ends under the 'E', extending slightly beyond the 'S' on the left and the 'E' on the right.

Our Work Product





# Work Product

- Dissemination of information on the role of minerals and metals in sustainable development, including the role of minerals in improving the quality of life, and
- Promotion of the achievements and capabilities of the minerals community to the general public and specifically to the communities in which mineral companies operate.



# Basic Message

- Shared Value Creation

- Resource library on WFEO website
- Seminars/workshops – promoting interaction
- Guideline booklets
  - For operators
  - For stakeholders/public
  - For regulators
  - In multiple languages
- Checklists for target groups
- All of the above?

- TF Theme Area 5: Risk Analysis, Mitigation and Management Technologies
- Developed an on-line tool box for managing risks in the minerals sector
  - Compendium of best practices and case studies, including experiences and lessons with examples of problems, solutions and recommendations.



# Work product

- SDIMI conference in Greece – June 2013
- Task Force Meeting in Johannesburg – June 2014
- Capacity Building Workshop in Vung Tau City, Vietnam – October 2014
- SDIMI conference/Capacity Building Workshop in Vancouver, Canada – July 2015



# Johannesburg TF Meeting

Jim Porter, 2014 SAIMM President discusses capacity building with the WFEO Task Force on Mining and Sustainability





# Johannesburg

- June/July 2014
- Participation by Thom McKune from the WFEO STC on Capacity Building
- Developed format and content for our first seminar rollout.
- Foundation for October meeting in Vietnam





## Capacity Building Workshop – Vung Tau City, Vietnam



20 October, 2014 | 9:15 am to 12:30 pm  
Imperial Hotel, Grand Ballroom, 159 Thuy Van, Thang Tam Ward, Vung Tau City, Vietnam

Workshop developed and conducted by World Federation of  
Engineering Organizations (WFEO) Task Force on Sustainability and Mining  
Sponsored by the Society for Mining, Metallurgy & Exploration (SME)

Held in conjunction with the Regional Meeting of the Society of Mining Professors (SOMP)

### Workshop overview

The WFEO Task Force on Sustainable Development and Mining is pleased to convene a half-day workshop on capacity building and sustainable development targeted at small and medium-sized mining operations and stakeholder communities in Southeast Asia. This event will be held in conjunction with the ASEAN++ 2014 Conference in Vung Tau City, Vietnam. The goal is to provide mine operators, non-governmental organizations, local and regional government officials, regulators and other industry stakeholders a common platform for exploring critical issues around mining, sustainable development and water resources in Southeast Asia.

The workshop will:

- Outline basic concepts of mining and sustainability
- Provide examples of practical sustainable development practices for managing mining operations
- Promote open exchange of ideas about critical issues from diverse perspectives among affected stakeholder groups
- Introduce the broad stakeholder community to how mining contributes to sustainable development with examples drawn from the following theme areas:
  - Environmentally sound engineering practices and technologies
  - Best practices in social sustainability and the minerals sector – including worker health, safety, reliability and training
  - Best practices in eco-efficient use of land, water, energy and mineral resources
  - Engineering solutions to re-using, re-purposing and recycling of minerals
  - Innovative practices and techniques on risk management



# Vietnam Capacity Building Workshop





# Opportunities

- Target our work product based on the audience
- Involve young engineers
- Communicate clearly and in multiple languages
- Remain faithful to ENGINEERING





# Collaboration with WFEO Committees

- Capacity Building
- Disaster Risk Management
- Education
- Innovative Technologies
- Energy
- Anti-Corruption
- Future Leaders



# Collaboration Opportunities

- UNESCO
  - Asia
  - Africa
  - South America
    - Brazil
    - Peru



# Proposal

- If funding is available.....

Hold a second capacity building workshop in Mexico with small to medium mining companies, NGOs, regulators and local community representatives.

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# FUNDING

- Needless to say, we need \$\$\$\$
- UNESCO?
- WORLD BANK?
- NGO Sources?
- Gates Foundation?



# Sustainability and Mining

- Summary:

We have an enthusiastic group of engineers committed to addressing this topic in a timely manner with expected positive impacts on our engineering profession, the mining industry, and sustainability initiatives at local, national and global levels.





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Thank you!



If it can't be grown...





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...it has to be mined!

