

**SESSION C: MINING SITE  
REMEDICATION – LEGAL,  
TECHNICAL, FINANCIAL, AND  
SOCIAL ISSUES**

**Moderator: Dietmar Müller, Austria**



# PRESENTATIONS

- C1: Risk Assessment of Mining Waste Facilities in the Light of the European Mining Waste Directive
  - Jörg Frauenstein, Germany
- C2: The Potential of Providing Multinational Mining Environmental Management Technical Expertise to Developing Countries
  - Steve Hoffman, United States
- C3: Contaminated Sites Management at Mine Sites in British Columbia
  - Mike Macfarlane, Canada

## PRESENTATIONS, CONTINUED

- C4: After Care of Mines in France
  - Phillipe Bodenez, France
- C5: Uranium Mining Environmental Restoration Project
  - Roberto Kurtz, Argentina

## C1: RISK ASSESSMENT OF MINING WASTE FACILITIES IN THE LIGHT OF THE EUROPEAN MINING WASTE DIRECTIVE



- Implementing EU Mining Directive from 2006
- Criteria for assessing chemical & physical risks
  - Inventory of high risk sites (“Category A”)
- Special attention to stability
  - Dams
  - Tailing/Sedimentation Ponds
- Characterization leads to remediation plan
- Remediation follows Principle of Proportionality
  - Suitable
  - Required
  - Adequate
- Addresses special situations
  - Increased background from traditional mining (middle ages)
  - Designation of special areas with limited soil use

## C2: THE POTENTIAL OF PROVIDING MULTINATIONAL MINING ENVIRONMENTAL MANAGEMENT TECHNICAL EXPERTISE TO DEVELOPING COUNTRIES



- Proposal to assist developing countries with site-specific issues using expertise from developed countries
- Current assistance is not site-specific
- Developing countries have limited time to address EIA for large-scale, high impact, new mine proposals
- Proposal: Establish intergovernmental group of mining experts from developed countries to assist site-specific evaluations in developing countries
  - Fund by contributions from each country
  - Manage group using World Bank or UN
  - Request for assistance would come from developing country
  - Screening for conflicts in cases where foreign country has interest in specific site under evaluation

# C3: CONTAMINATED SITES MANAGEMENT AT MINE SITES IN BRITISH COLUMBIA



- Program allows cleanup to numerical standards (75% of sites) or risk-based (25% of sites)
- Focus on high risk sites
- Polluter pays principle is followed
  - Order authority with penalties
- Site Registry
  - 11,000 in, 3000 cleaned up, 300 new each year
- Currently 12 mine sites in Contaminated Site Remediation program in B.C.
- Focus on core areas with waste rock and tailing
  - Acid rock drainage control
- Britannia Mine (The largest ARD Marine project)

## C4: AFTER CARE OF MINES IN FRANCE



- Developing inventory (EU Mining Waste Dir.)
- Historical mining dates back to Roman era
  - Most active period 19<sup>th</sup> and 20<sup>th</sup> century
  - No active mining in France (e.g. coal closed by 2004)
- GEODERIS / BRGM developed methodology to review 3000 sites using existing info & site visit
- 3 criteria - Nature of Residue/Type of Operation/Volume of Deposits – used to assess
- Potential Toxicity/Potential Transfer/Potential Exposition
- Inventory not yet final but 30 sites likely to need survey and/or remediation

# C5: URANIUM MINING ENVIRONMENTAL RESTORATION PROJECT



- PRAMU addressing 8 uranium mines operated under CNEA
- Using World Bank loans
- Conducting monitoring at all 8 sites
- Remediating Malargüe mine
  - Dismantling, Drainage control
  - Encapsulation of tailings
- PRAMU involves community in all aspects of the projects
  - Communication (e.g. video)



## THREE FOCUS QUESTIONS

- What is the current state of practices in your country or organization?
- What are the challenges for the future in your country or organization?
- What are the opportunities to address challenges in the future?

## EUROPE – CURRENT PRACTICE

- Major accidents (Romania, Baia Mare; Spain Aznacollar) associated with mining sites
- New directive aimed at mining wastes requiring inventory and remediation
- Generally mining industrie going down (closures; exceptions in East and Northern Europe)
- Large and old legacy mines
- Supports build new strategies on experiences and combine to staged RA-procedures

# U.S. AND CANADA – CURRENT PRACTICE

- Active/New Mines – requiring more attention to bonding/financial assurance for reclamation and remediation and closure requirements
- Legacy Mines – Identifying these sites and addressing high risk sites first

# DEVELOPING COUNTRIES – CURRENT PRACTICE

- Addressing proposals for new mines and want to avoid problems developed countries experience with their legacy mines
- Many developing countries have new laws and regulations they are in the process of implementing and they need technical assistance

# DEVELOPED COUNTRIES – FUTURE CHALLENGES / OPPORTUNITIES

- Legacy mines
  - Liability issues
  - Financial issues
  - Large scales
  
- Active mines
  - Financial assurance
  - Auditing while mine operates to make sure bond will be sufficient
  - Developing long-term treatment techniques to acid drainage
  - Innovation regarding reuse and revitalization concepts and technologies (e.g. copper recovery)

# DEVELOPING COUNTRIES – FUTURE CHALLENGES / OPPORTUNITIES

- Obtaining technical support to avoid creating a legacy problem
- Creating legal and institutional framework to address mining issues and knowledge transfer
- Learn from experienced (foolish) countries