



ICCL
international
committee on
contaminated
land

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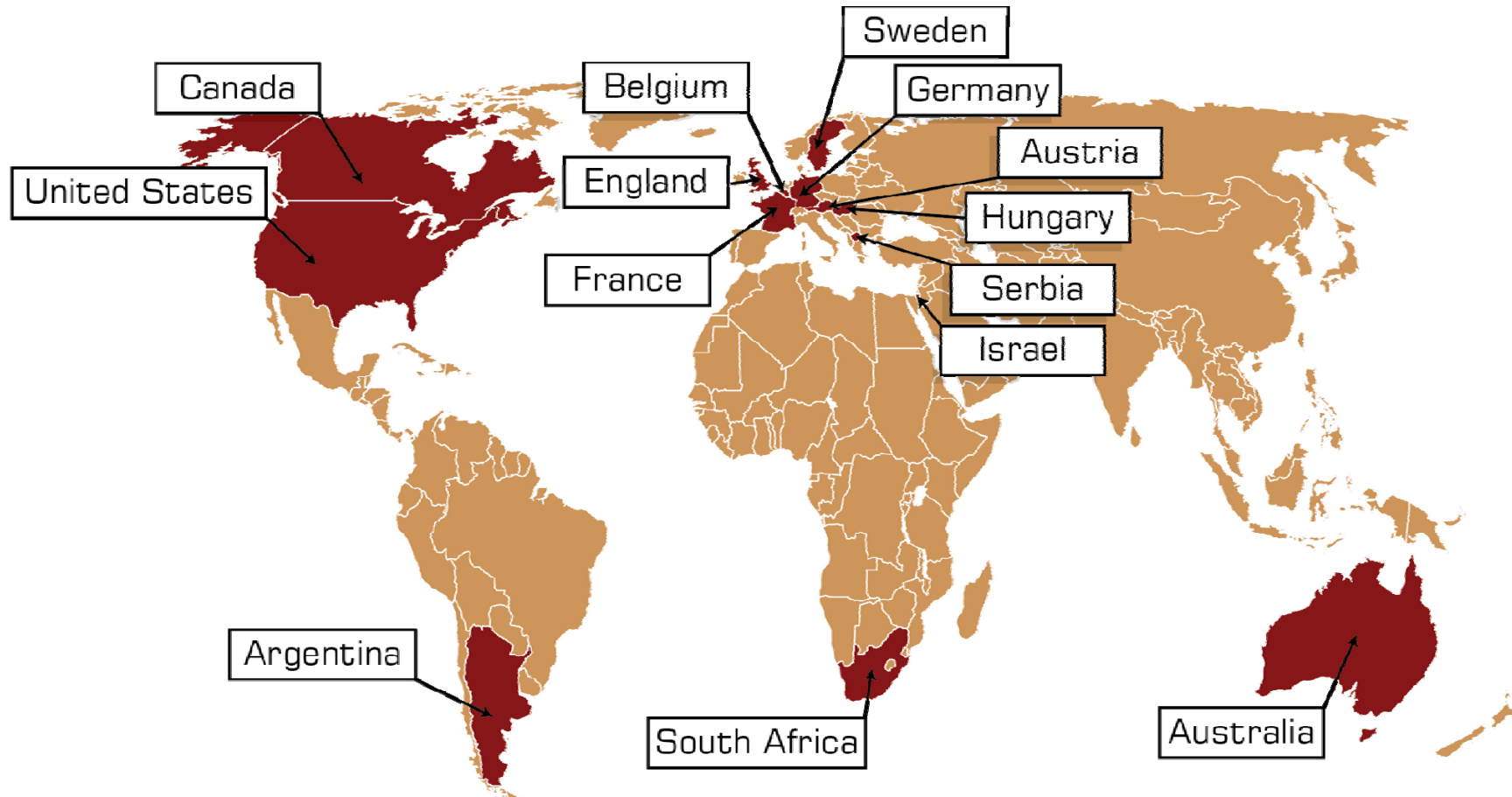
Questionnaire Results

Mining Site Remediation and Reuse

The Mining Site Cleanup and Reuse Survey

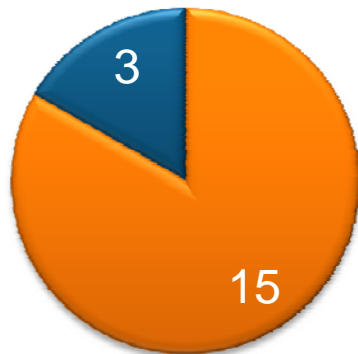
- ◆ Received 18 completed surveys
- ◆ The survey covered:
 - Technical Issues
 - Policy Issues
 - Legal/Regulatory Issues
 - Financial Issues
 - Social Issues
- ◆ Presentation includes a summary of survey responses and conclusions

Countries Represented in the Questionnaire



Technical Issues

1. Are cleanup goals used when remediating contaminated mining sites?

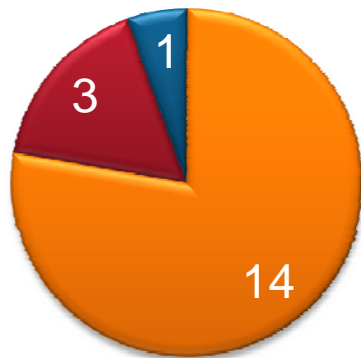


- Yes
- No
- No Response

- ◆ All countries who responded use cleanup goals.
- ◆ How cleanup goals are established can vary:
 - Argentina and Germany determine site-specific goals using the same soil and water protections laws that apply to all contaminated sites.
 - Australia indicated some sites are subject to specific cleanup goal requirements set in the operating license.
 - The U.S. does not have specific cleanup goals for mining sites.

Technical Issues

2. Is site-specific risk assessment used to clean up mining sites?



- Yes
- No
- No Response

- ◆ Most countries use some form of site-specific risk assessments to clean up mining sites, including both human health and ecological risk assessments.
- ◆ The most common approach is to conduct an Environmental Impact Assessment which could include a risk assessment section.
- ◆ US EPA and other federal land management agencies have developed human health and ecological risk assessment guidance.

Technical Issues

3. Are any Best Management practices (BMP) or Best Available Technologies (BAT) implemented when treating mining waste, mine tailings and/or mine influenced waters?

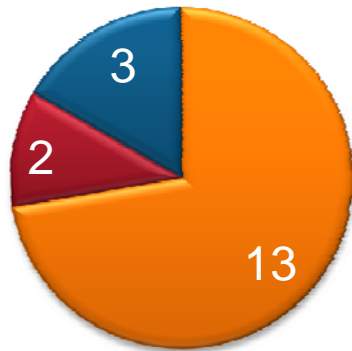


- Yes
- No
- No Response

- ◆ Argentina, Canada, and Hungary have guidance documents available identifying BMPs for mining sites.
- ◆ Belgium has technologies which are commonly used on mining site remediation.
- ◆ Australia, Germany, and Sweden develop feasible alternatives and weigh them against evaluation criteria to choose the best site-specific response action.
- ◆ The US uses a similar approach in selecting best site-specific response action in accordance with Superfund Regulations and Guidance.

Policy Issues

4. Is mining waste being reused for beneficial purposes?

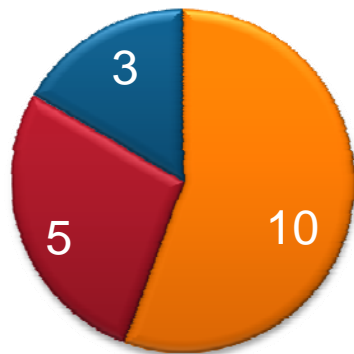


- Yes
- No
- No Response

- ◆ In most nations mining waste is commonly reused in road construction, capping, or as engineering fill.
- ◆ In Argentina and Australia mining waste is not commonly reused and in Sweden it is only reused around the mines and mining districts at large-scale mining sites.
- ◆ In the US reuse of mining waste includes:
 - Use as pavement, fill, and embankments
 - Land reclamation and site dams
 - Raw materials for other extraction processes
 - Reclamation of minerals

Policy Issues

5. Are there any initiatives or practices to encourage locating alternative energy facilities at contaminated or active mining sites?



- Yes
- No
- No Response

- ◆ In many nations solar power facilities or wind farms are located at mining sites. Canada also has hydroelectric power facilities located at mining sites.
- ◆ Australia has a current initiative to locate modern landfills and related waste processing facilities at mining sites. Landfill gas as an energy source is in place and energy from waste (thermal treatment) is under discussion. In England several mines actively pump methane for conversion to energy.
- ◆ US EPA recently announced an initiative “*The RE-Powering America’s Land: Siting Renewable Energy on Potentially Contaminated Land and Mine Sites Initiative*” to promote reusing contaminated properties and mining sites for renewable energy development.

Policy Issues

6. Are reuse practices (such as carbon sequestration) and/or ecological revitalization activities implemented at contaminated mining sites?

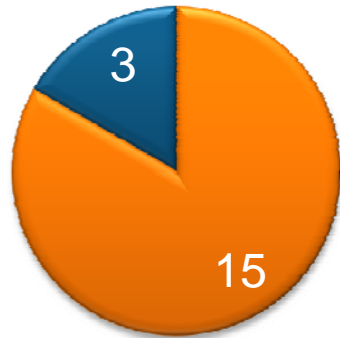


- Yes
- No
- No Response

- ◆ A wide range of reuse initiatives include: education centers, historical landmarks, commercial and industrial parks, recreational facilities, museums, residential areas, nature reserves, implementation of alternative waste treatment technologies, and habitat recovery activities.
- ◆ Germany is in the planning phase of carbon sequestration activities at a large mining site.
- ◆ In the US, reuses of formerly contaminated mining sites include: green space, recreational, historic preservation and interpretation, and ecological revitalization (restoration of wetlands).

Legal/Regulatory Issues

7. Do you have a regulatory framework(s) or other programs in your country that addresses the cleanup of properties impacted by mining contamination?



- Yes
- No
- No Response

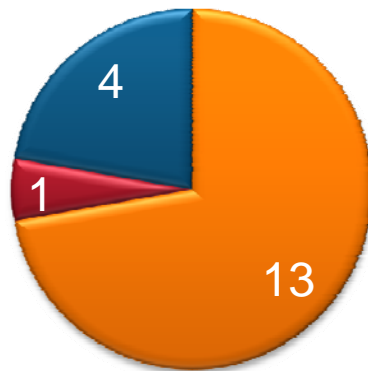
- ◆ All countries who responded have policies or programs in place to deal with impacted properties.
- ◆ In most countries the mining company or polluter has primary responsibility but the land owner or current operator may have joint responsibility. In England sites being redeveloped under the Planning Regime would require the developer to pay.
- ◆ Mining activities are regulated by a number of federal and state environmental laws in the US.
 - Comprehensive Environmental Response Compensation and Liability Act (CERCLA) or Superfund
 - Clean Water Act (CWA).
 - Surface Mining Control and Reclamation Act (SMCRA) (Coal mining only)
 - Bureau of Land Management, US Forest Service and many states have regulations to address reclamation of mining sites.

Legal/Regulatory Issues

8. What types of enforcement measures and/or programs are available to recover costs from mining companies that caused the contamination?
- ◆ Most countries have laws and statutes in place that require the polluter to pay for cleanup. Australia also has a Derelict Minesite Program and a small orphan/innocent owner program is being proposed, funded in part by waste disposal levies.
 - ◆ For mining sites subject to current permits various types of financial assurance mechanisms and programs are in place. In Australia financial assurances applied to current lessees have been continually upgraded. Sweden, Germany, and France also require financial guarantees. Enforcement activities can include inspection, reporting and monitoring requirements.
 - ◆ In the US, state laws require mine owners to post bonds for reclamation and closure. Federal laws, such as Superfund, have strong enforcement authorities that can be used to compel mine operators and other liable parties to investigate and cleanup contamination.

Legal/Regulatory Issues

9. Is cleanup and reclamation of mined land part of the mine permitting process?



- Yes
- No
- No Response

- ◆ Most respondents indicated remediation has been integrated into the permit process.
- ◆ In Argentina, newer mine permits include reclamation, older permits did not. Sweden requires a guarantee for some remediation costs. Canada is considering statutory amendments to ensure bonding can be required.
- ◆ Certain federal and state laws in the US require closure and reclamation plans in permits:
 - SMCRA (coal mines only)
 - Federal Land Management Agencies and State laws (hardrock mining)
 - CWA (used to control point source discharges of pollution).

Legal/Regulatory Issues

10. Is “designing for closure and post-closure” actively practiced?

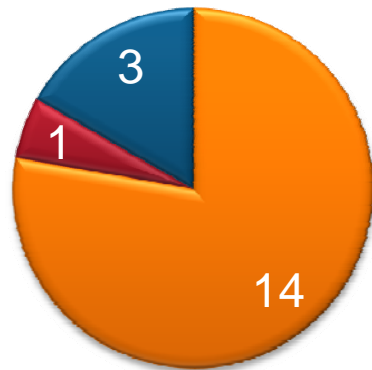


- Yes
- No
- No Response

- ◆ Most countries are designing new mines for closure and post-closure. In Argentina this practice began after legislation was approved in 1997.
- ◆ In Canada it is handled on a case by case basis considering age of the mine, remoteness and risks posed by the site.
- ◆ Federal and state laws in the US require mines to prepare closure and post-closure plans
 - SMCRA requires coal mines to return land to a productive land use.
 - Federal Land Management Agencies and State laws require closure plans for hard rock metal mines, but sites often leave open pits to fill or partially fill with water.

Legal/Regulatory Issues

11. Is an Environmental Impact Analysis/Statement (EIA/EIS) performed for proposed mining operations?



- Yes
- No
- No Response

- ◆ Many countries require that an EIS/EIA be included in the proposal documents.
- ◆ In most cases the EIA/EIS is required to include provisions for closure and long-term liability.
- ◆ EIA/EIS is required when a proposed mining operation is on federal or tribal managed lands in the US.

Financial Issues

Summary 12-14. Funding of Mine Cleanups

- ◆ In most countries a polluter pay policy is in place requiring the mining companies or legal successors to pay some or all of the cleanup costs when they can be identified.
- ◆ In the US, federal and state laws require companies to post bonds to cover reclamation costs as a prerequisite in obtaining a mining permit.
- ◆ All countries who responded indicated that when no mining company, successor or current owner can be indentified, public funds are used to fund the remediation.

Financial Issues

Summary 12-14. Funding of Mine Cleanups

- ◆ When the polluter cannot pay, a variety of programs are used:
 - Australia has a treasury allocation of a fixed amount per year and a waste levy on disposal to landfills is under consideration to provide modest funds for orphan sites or innocent owners.
 - Belgium mentioned the European Fund for Regional Development can be used to partly cover costs.
 - Hungary has a National Environmental Remediation Program.
 - England has the Coalfields Programme, set up to regenerate old mining areas after the closure of the pits.
 - In Sweden, for sites abandoned before the 1969 legislation, funding from the state is possible.
 - In France a post mining remediation program has been launched in recent years to fund and manage the remediation of abandoned mines.
 - In the US, SMCRA provides funding (primarily for coal mines). Superfund enforcement authorities and Trust Fund money may also be used. Recently introduced legislation for fees on hardrock mining to pay for AML cleanups.

Social Issues

15. How does the local community participate in mine permitting, design/construction, financial responsibility calculations and the mine closure process?
- ◆ Most of the countries who responded indicated there is an opportunity for public involvement and discussion in the permitting and proposal phase.
 - ◆ A variety of answers were given regarding community participation in closure and cleanup:
 - In Canada, responsible parties can be required to pay for public consultation. This is most frequently utilized in the phase where risk management approaches to the remediation are selected.
 - In Germany the community is included as the planning authority regarding the future land use. France also involves local mayors and services concerned by the mine in the closure process.
 - Belgium indicated mining operations were mainly followed on a national or regional scale and local community involvement in the cleanup of mining sites was very low.

Social Issues

15. How does the local community participate in mine permitting, design/construction, financial responsibility calculations and the mine closure process? (continued)

◆ In the US:

- NEPA provides for public comment on EIS/EIA for proposed mining operations.
- Federal and state laws require federal and state agencies to hold public hearings and respond to public comments when issuing permits.
- Federal and state cleanup laws (e.g., Superfund) provide opportunities for community involvement in every step of the cleanup process .

Social Issues

16. Are there any regulations/programs that address/manage social impacts of mining and mine reclamation?

◆ Social impacts area addressed in a variety of ways:

- In Germany they are addressed by the Environmental Impact Assessment.
- In Australia community consultation is often a permit requirement.
- In France there is a law addressing the social impact of the closure of mines.
- In Serbia some programs include the obligation of employment opportunities for the local population.

◆ In the US, they are addressed during:

- EIS/EIA
- Permitting process
- Closure and Cleanup processes

Conclusions

- ◆ Similarities among countries include:
 - Permitting process
 - Polluter pay approaches
 - Recent upgrades to closure and post-closure planning
 - Increased emphasis on beneficial reuse including revitalization and locating alternative energy technologies
- ◆ Differences among countries include:
 - Laws and Statutes
 - Level of public interest and involvement
- ◆ Challenges Include:
 - Funding remediation at abandoned mine sites
 - Scoping closure activities and calculating costs for closure and post-closure care.