



Approaches to Mining Environmental Regulations

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Layout

- Purpose
- General approach to regulations
- Content of regulations
 - US EPA, Alaska
 - Canada, Yukon placer mining
 - Latin America
- Application to Guyana



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Why Regulations?

- Sustainable Development

“Development that meets the needs of the present without compromising the ability of future generations to meet their own needs”

- Focus is on society and ecosystems

- Clean air and water
- Productive land

- Realistic regulations are a component of SD



Why SD and Mining?

“If sustainability is a threat then we are out of business”
(Placer Dome, 1999)

- Maintain control of the industry
- Demonstrate the long term value of the industry
- Positive impact on society



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Benefits of Regulations

- Increase viability of industry
- Consistency across the industry
- Recognition by international community
- Increased international investment and trade



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General Approach

☐ Canada

- Cooperative, multistakeholder approach
- Sound science

☐ US

- Science based recommendations
- Moving toward public consultation
- Does not specifically include industry input

☐ Latin America

- Relatively new
- Using multistakeholder approach



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Us Epa

- Resource Conservation and Recovery Act
 - Mining excluded since 1991
- Clean Water Act
 - Effluent is either technology based or water quality based
- Specific regulations for placer mining



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US EPA - Placer Mining

- ❑ No specific regulations for small scale placer mining
- ❑ Large scale defined by;
 - 1,500 yards/year of material moved
 - 50,000 yards/year of material moved for dredges
- ❑ Permits may be issued to discharge dredge material into waterways
 - Only after public hearings



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Alaska

□ Mining operations

- Prevent unnecessary degradation of land and water resources
- Site reclaimed as practicable as possible
- Must have an approved reclamation plan
- A bond to ensure requirements of the approved reclamation plan are met
- Water permits



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Alaska - Details

- State water quality standards for turbidity and for arsenic
- Turbidity 5 NTU above background
- Arsenic 0.05 mg/l



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Canadian Approach

*Exploration
&
Development*

Exploration Permit

Environmental Assessment

Construction Permit

Certificate of Approval

Operation

Fisheries Act

MMLER's

Jurisdiction Specific Regulations

Decommissioning

Decommissioning Plan

Bond



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Canadian Mmler's

- ❑ Metal Mine Liquid Effluent Regulations
- ❑ Promulgated in 1977
 - Undergoing comprehensive re-write
- ❑ Focus on effluent limits
- ❑ Based on best practicable technology in 1977
- ❑ “Grandfathering”
- ❑ Minimum requirement



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New MMLER's

- ❑ Re-written with a government, industry, environmentalist and aboriginal consortium
- ❑ Based on Best Available Technology Economically Achievable (BATEA)
- ❑ Includes 5 components
 - Water quality
 - Environmental Effects Monitoring (EEM)
 - Toxicity
 - Decommissioning
 - Codes of Practice



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Yukon Placer Mining

- Two sectors
 - Quartz
 - Placer
 - Separate acts
- Yukon Placer Mining Act
- Yukon Waters Act
- Fisheries Act



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Mining Acts

- Yukon Placer Mining Act
 - Disposition of placer mining rights
 - Placer title
- Mining land use - Yukon
 - 1998 amendment
 - Four different classes of operations depending on
 - Degree of land disturbance
 - Potential environmental consequences



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Water Acts

Yukon Waters Act

- Governs the use of surface or ground waters and the deposit of waste in water courses
- Water license required

Yukon Water License

- Application is a fifty page document requiring detailed mining plans



Latin America - General

- ❑ Actively seeking new trade partners
- ❑ Needed to modernize its environmental legislation
 - For its own protection
 - Satisfy the conditions of trade agreements
- ❑ Legislation is often rushed to meet external demands
- ❑ Technical capacity to ensure practicality or purpose often missing
- ❑ Workshop exchanges facilitate sound regulatory development



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Venezuela

- Ministry of Environment and Renewable Natural Resources
 - Ministerio del Ambiente y de los Recursos Naturales Renovables, MARNR
- Responsible to ensure that the usage of any natural resource will not endanger the existence and potential usage of water resources
 - *Sustainable development?*
- Water quality regulated by the application of national, regional and local water quality plans



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Brazil

- ❑ In 1981, Brazil enacted its environmental policy
- ❑ Organised the National Environmental System (SISNAMA)
- ❑ National Council of Environment (CONAMA)
 - Responsible to propose environmental protection policies, guidelines and standards
 - States can develop their own regulations following CONAMA's guidelines
 - Regulations are spread among different institutions and legal documents



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Water Quality Standards

- ❑ Water quality criteria developed for drinking water and effluent
- ❑ Applicable to mining and other sectors
- ❑ Peru, Brazil, Costa Rica, Chile and Venezuela
- ❑ Water bodies classified according to use (Brazil and Venezuela)
 - i) domestic use and potable water for industries
 - ii) agricultural use
 - iii) marine water for shellfish or fish farming
 - iv) recreational use



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Common Themes

- Multistakeholder approach
- Multi-tiered regulations
- Flexible
- Grandfathering
- Classification of water bodies
- Technology based
 - Achievable by industry



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Application to Guyana

- Recognize context of mining in Guyana
 - Simple
- Protect environment
 - Reduced degradation
- Ensure mining remains sustainable



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Concepts Adaptable to Guyana (Placer Mining)

- ❑ Cooperative, multistakeholder approach
- ❑ Flexibility
- ❑ Sustainability of industry
- ❑ Simple, measurable and enforceable
- ❑ Code of practice
 - Generic “how to”



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Specifics - 1

- Solids in water
 - Suspended
 - Total
 - Settleable
- Mercury
- Classification of water bodies
- Aquatic effects?
- Toxicity?



Specifics - 2

- Phased monitoring
 - Regular self-monitoring
 - Interval monitoring by GGMC
 - Quarterly, semi-annual
 - Yearly validation by EPA



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Summary

- ❑ Regulations can be beneficial to the industry
- ❑ Must be developed in a cooperative fashion
 - Industry, government, public
- ❑ Realistic goals



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