ENVIRONMENTAL IMPACT ASSESSMENT AND MANAGEMENT FOR ASM & LSM

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PRESENTATION OUTLINE

• Environmental Assessment and Management in ASM & LSM

• The Challenge in ASM

• An integrated approach – Strategic Environmental Impact Assessment (SEIA) by Governments and Environmental Management (EM) by Miners.

• Case Studies

• Ghana - Current Framework and SEIA and EM Approaches for the Future

• Guyana - Current Framework and approaches to managing ASM
Environmental Impact Assessment

- Assessment of the impacts of a proposed mining development on the physical and socioeconomic environment.
- Supports planning, regulatory decision making, and development of environmental management plans.

Environmental Management

- Managing the impacts of mining activity on the environment.
- An outcome of EIA.
## EIA COMPARISON BETWEEN ASM & LSM

<table>
<thead>
<tr>
<th>Issue</th>
<th>ASM</th>
<th>LSM</th>
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<tbody>
<tr>
<td>Ore deposit location</td>
<td>Placer or near surface</td>
<td>Depth and complexity limited only by technical and economic feasibility</td>
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<tr>
<td>Ore extraction</td>
<td>Gravity separation or low level chemical processing</td>
<td>Able to exploit complex ores</td>
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<td>EIA regulations</td>
<td>Typically exempt</td>
<td>Typically trigger EIA requirement</td>
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<tr>
<td>Who is responsible and pays for EIA</td>
<td>Miner or government agencies</td>
<td>Mining proponent, private sector</td>
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<td>Complexity of decision making</td>
<td>Simple, in general a few well known and easily managed effects.</td>
<td>Complex, effects determined by type and scale of operation</td>
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<td>How are effects managed</td>
<td>Not managed in informal ASM, variably managed through mining licenses in formal ASM zones.</td>
<td>Project specific management plan enforced through Environmental Certificate and licensing.</td>
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THE CHALLENGE IN ASM

EIA Requirements
- Same as LSM – unrealistic
- Fall below production threshold
- No requirement

Resources and Capacity
- Often limited and insufficient to complete EIA (both by government and miners)

Formalization
- Lack of, and resistance to formalization limits ability for environmental management
A SOLUTION

Governments’ Role

• Strategic Environmental Impact Assessment (SEIA) of Designated ASM Zones

Miners’ Role

• Environmental management (EM) of the effects of individual ASM operations
Strategic Environmental Impact Assessment of Designated ASM Zone

- Proactive, regional and supports sustainable development of ASM
- Connected with regional planning and definition of go and no-go zones
- Combined and cumulative assessment of mines and process plant
- Landscape and ecosystem approach – linked to geological zones
- Scalable to reflect availability of capacity and resources
- Can be a ‘desk-top’ assessment based on relatively well-know environmental impacts of ASM where capacity is limited
Environmental Management of ASM Impacts by Miners

- Miners responsible for environmental management not EIA
- Linked to formalization. Cooperatives should be encouraged.
- Supported by user-friendly forms to help with the preparation of environmental management plans by miners
- Management requirements can be scaled to reflect local circumstances and capacity – can range from as little as setting aside soil for future reclamation to the full design of tailings storage facilities
Central Tailings Storage Facility
- 90 gold processing plants
- Hundreds of mines
- Significant disposal of mercury and cyanide-bearing tailings in trans-border river

SEIA of processing plants by national and provincial governments
- Recommendation for central tailings storage facility – El Tablón – built by government

Environmental Management
- As of 2015 all process plant operators without an approved storage facility must use El Tablón
YUKON’S PLACE MINING REGIME – ASM IN CANADA

Watershed Approach to SEIA

• Supports sustainable mining industry and healthy fish habitat
• Water quality objectives and sediment discharge standards for 19 watersheds based on biological heath and fish habitat
• Management of cumulative effects
• Integrates science and local and indigenous knowledge

Clear Environmental Management Rules

• ‘Single window’ approach to licensing including forms and guidebooks for miners to follow
• Clear up-front rules for placer mining activity

Partially reclaimed placer mine, Yukon. Tailing piles have been flattened, recontoured and top-coated with organic-rich sediments for reclamation
• Achievable and scalable to reflect availability of resources and capacity

• Integrated assessment and management of the cumulative effect of many ASM mines in the same region

• Linked to regional planning and defines areas where mining is a ‘no-go’

• Allows for combined assessment of mines and process plants

• Implements lifecycle planning and designing for closure from the start
Training is a key to the success
THANK YOU

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