ESG challenges for small-scale mining in the 21st Century

Prof. Giorgio de Tomi

25 July 2022
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• How to go about it?
The mine value chain

Mineral Exploration → Mine Planning → Engineering Studies → Implementation & construction → Operation and Production → Mine Closure → Post-Closure

Modifying Factors:
- LoM (base case)
- Mine Closure Plan (conceptual)

ESG: Environmental, Social Responsibility and Governance

Before → During → After

LoM detailing → Mine Planning Cycle

Monitoring and Future Use

Decommissioning and socioeconomic transition

Mineral Reserves

ESG Challenges for Small-scale Mining in the 21st century
Prof. Giorgio de Tomi, 25 July 2022
Small-scale mining and sustainable development...

17 Sustainable Development Objectives (2030 Agenda)

...leave no one behind

Source: UN, 2030 Agenda for Sustainable Development (2015)
Small-scale mining and sustainable development...

Mapping Mining to the SDGs  (2016)

Source: UN, 2030 Agenda for Sustainable Development (2015)
Small-scale mining and sustainable development...

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Source: UN, 2030 Agenda for Sustainable Development (2015)
Small-scale mining and sustainable development...

<table>
<thead>
<tr>
<th>9 of the 17 SDG</th>
<th>Relationship with Small-scale Mining</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDG 01: No poverty</td>
<td>Small-scale mining can add value to the communities</td>
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<td>SDG 02: Zero Hunger</td>
<td>Small-scale mining can help the rural population</td>
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<td>SDG 05: Gender equality</td>
<td>Women can play a bigger role in small-scale mining</td>
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<td>SDG 06: Clean water</td>
<td>Small-scale mining uses water and must keep it clean and healthy</td>
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<td>SDG 08: Economic Growth</td>
<td>Small-scale mining creates many specialized and non-specialized jobs</td>
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<td>SDG 15: Life on land</td>
<td>Small-scale mining must look after the territory it occupies</td>
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<td>SDG 16: Strong Institutions</td>
<td>Small-scale mining offers many opportunities for regional integration</td>
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<td>SDG 17: Partnerships</td>
<td>Small-scale mining is multi-stakeholder and interdisciplinary</td>
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The World Bank and the SDGs for Small-scale Mining (2019) (!)
Small-scale mining and sustainable development...

17 Sustainable Development Objectives (2030 Agenda)

...leave no one behind
“There is no sustainable development without Responsible Mining”

There is no sustainable development in the 21st century without Responsible Small-Scale Mining*

(*) in particular, taking into account the critical role of small-scale mining in the supply of minerals for the carbon neutrality scenario of 2050

Source: Canada’s Critical Minerals List 2021
https://www.nrcan.gc.ca/

Fonte: Julie Klinger, University of Delaware, USA (2020). Webinar Mining and the SGDs, Responsible Mining Foundation
What is the top challenge for mining (and small-scale mining) right now?

ESG Agenda
(Environmental, Social Responsibility and Governance)

Without prioritizing ESG actions, small-scale mining will not be able to contribute with the carbon neutrality agenda of 2050

And we have 2 additional indicators ... for THIS DECADE ...

Scope 1 and Scope 2 are compulsory in Mining before 2030!

2030 Agenda and ESG Agenda

But how is ESG being addressed in small-scale mining ...

Are there examples of efficient governance solutions for small-scale mining?

- Resilient partnerships
- Co-existence business models
- Co-management of future use
How to get there?

• Pick a few **ESG indicators** and set **TARGETS** for your operation
• Align the chosen indicators and targets with **all stakeholders**
• Control and record your ESG indicators, including Scope 1 and Scope 2 for GHG emissions
• Manage and monitor your **progress with the ESG indicators** and share it with all stakeholders
• And always **remember that**...

**ESG in small-scale mining is not a RESTRICTION**

**ESG in small-scale mining is VOCATION**
ESG challenges for small-scale mining in the 21st Century

Thank you!

Prof. Giorgio de Tomi
25 July 2022