CLIMATE-SMART MINING
LEARNING SERIES: THE CIRCULAR ECONOMY AND CRITICAL MINERALS

December 9, 2020
Climate-Smart Mining

CSM supports the sustainable extraction, processing and recycling of minerals and metals needed to secure supply for low-carbon technologies by minimizing the climate and material footprints of these technologies throughout their value chain.
## Building Blocks of ‘Climate-Smart Mining’

<table>
<thead>
<tr>
<th>Climate mitigation</th>
<th>Climate adaptation</th>
<th>Reducing material impacts</th>
<th>Creating marketing opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integration of renewable energy in the mining sector</td>
<td>Forest-Smart Mining with landscape management</td>
<td>Adoption of a circular economy for low-carbon minerals</td>
<td>De-risking investments for low-carbon minerals</td>
</tr>
<tr>
<td>Innovation in extractive practices</td>
<td>Resource efficiency in mineral value chain</td>
<td>Reuse / recycling of low-carbon minerals</td>
<td>Leverage carbon finance instruments</td>
</tr>
<tr>
<td>Energy efficiency in mineral value chain</td>
<td>Innovation waste solutions</td>
<td>Low-carbon mineral supply chain management</td>
<td>Robust geological data management</td>
</tr>
</tbody>
</table>

**Strong governance and adequate regulatory framework**

**Gender and multi-stakeholder engagement**
In partnership with the Energy Storage Partnership (ESP)

Development objective: how can developing countries best be provided with the tools and capacity to take advantage of a 2nd life global battery market for the new generation of batteries technologies?

Follow up to Report: RE USE AND RECYCLING: ENVIRONMENTAL SUSTAINABILITY OF LITHIUM-ION BATTERY ENERGY STORAGE

- Work ahead (in collaboration with GBA and others):
  - Systems for integration and effective management
    - EOL systems from cradle to grave
      » Which countries have the mineral resources?
      » What is the level of CSM in those countries to deliver those resources?
      » Capacity for processing/beneficiation/recycling
  - Enhancing the economics: building the business case
  - Regime building – strengthening standards, regulations and liability provisions

Devising roadmap(s) for deployment of second life EV batteries and battery recycling capacity in developing countries:
- Capacity for collection and recycling of ‘new generation’ batteries
- Potential for repurposing to help developing countries transition to clean electricity services