MONITORING SOCIAL PROGRESS IN MINING ZONES:
THE CASE OF ANTOFAGASTA & TARAPACA, CHILE

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*CSRM*

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*CSRM*
Socioeconomic impact analysis

In general, in the last 20 years the socioeconomic impact analysis of mining activity has been improving following different recommendations from NGOs, institutions (e.g. IFC, ICMM, GRI) and local organizations.

However, mining activity is facing growing expectations and complex questions in relation to the impacts of mining and in terms of the concept of development and social progress.
3 type of questions for impact analysis:

**Type I**

... national production, export, number of trucks, stockpile capacity... GDP, export, investment, direct and indirect employment

1980-1999

**Type II**

What are the impacts on quality of life, human development and social progress, state incomes?

2000-2009
3 type of questions for impact analysis:

Type III
Is social progress and human development of mining zones, proportionate to the wealth created by the extractive industry or by Society?
Today the mining sector (or Society) must have a deeper view of the socioeconomic development in mining zones, to answer complex questions from Society in relation to mining’s impacts and benefits.
3 Strong Reasons to improve the analysis:

Reason 1
The mining sector must understand its responsibility as an important part of Society.

Reason 2.
Mining activity is generating unprecedented earning.

Reason 3.
Communities have an **historic opportunity** to improve their social conditions, especially in zones with low levels of human development.
Reason 1: An important part of Society

Mining GDP in Latin America

US$ billion

Direct Percentage (%)
Reason 2: Unprecedented earnings

Cooper Market: Price, Cash Cost and C3 Cost

Cash Cost
Costo C3
Precio Cu. Promedio Anual

Cooper Market: Price, Cash Cost and C3 Cost


C$US/lb

0 50 100 150 200 250 300 350 400

First International Seminar on Social Responsibility in Mining
19 → 21 October. Santiago, Chile
Reason 2: Unprecedented earnings

30 years - Gold Price – US$ per ounce
Reason 2: Unprecedented earnings

Hypothetical model

Generic model of Market at Extractive Industry

The expectation are growing.

40% -50% of Net Sales

Net Sales

40% 50%
of Net Sales

$ Net Sales

60% 70% -80% of Net Sales

Abnormal Earning

Abnormal Earning

Normal Earning

Normal Earning

Taxes

Taxes

Cash Cost

Cash Cost

1990 2000 2010

SOURCE: PREPARED BY CSRM
Reason 3: Historic Opportunity

CHILE: TARAPACA & ANTOFAGASTA, POVERTY (%)

<table>
<thead>
<tr>
<th>Region</th>
<th>1990</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tarapaca</td>
<td>28.3</td>
<td>11.8</td>
</tr>
<tr>
<td>Antofagasta</td>
<td>34.2</td>
<td>7.3</td>
</tr>
<tr>
<td>Chile</td>
<td>38.6</td>
<td>13.8</td>
</tr>
<tr>
<td>Latin America</td>
<td>48.3</td>
<td>36.5</td>
</tr>
</tbody>
</table>
What is reasonable development?

CHILE: TARAPACA & ANTOFAGASTA, POVERTY (%)

Are social progress and human development of mining zones, proportionate to the wealth created by extractive industry or Society?
What is reasonable development?

Are social progress and human development of mining zones, proportionate to the wealth created by extractive industry or Society?

MIDEPLAN,
What is reasonable development?

**POVERTY (%)**

CHILE: TARAPACA & ANTOFAGASTA

- Tarapacá: 28.3 % (1990), 11.8 % (2006)
- Antofagasta: 34.2 % (1990), 7.3 % (2006)
- Chile: 38.6 % (1990), 13.8 % (2006)
- Latin America: 48.3 % (1990), 36.5 % (2006)

**GDP per capita**

TARAPACA & ANTOFAGASTA, CHILE

- Tarapacá & Antofagasta: 30,000
- Chile: 12,000

MIDEPLAN,
CSRM, GDP BASED ON CENTRAL BANK OF CHILE
Our proposal

Components for framework of analysis

5 Dimensions

<table>
<thead>
<tr>
<th>Social and economic conditions</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>Trend of Progress</td>
</tr>
<tr>
<td>Health</td>
<td>Reference Level of Progress (or Target)</td>
</tr>
<tr>
<td>Local and small communities</td>
<td>Gap (year)</td>
</tr>
<tr>
<td>Institutional development</td>
<td>Evaluation (High, Medium, Basic)</td>
</tr>
</tbody>
</table>

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**Trend of Progress**

**Reference Level of Progress** (or Target)

**Gap (year)**

**Evaluation (High, Medium, Basic)**
# Monitoring Framework

## Socioeconomic Conditions

<table>
<thead>
<tr>
<th></th>
<th>Current Data</th>
<th>Trend of Progress Per year (2000-2009)</th>
<th>Target</th>
<th>Gap (Years)</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poverty (%)</td>
<td>7%</td>
<td>0.35%</td>
<td>1%</td>
<td>17</td>
<td>MEDIUM</td>
</tr>
<tr>
<td>Inequality (% poorest quintile)</td>
<td>6%</td>
<td>0.3%</td>
<td>8%</td>
<td>7</td>
<td>HIGH</td>
</tr>
<tr>
<td>Salary ratio Female/Male</td>
<td>0.55</td>
<td>0.04</td>
<td>0.9</td>
<td>9</td>
<td>HIGH</td>
</tr>
</tbody>
</table>

CASEN, MINEDUC, MINSAL, INE, BANCO CENTRAL DE CHILE
## Monitoring Framework

### Education

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<thead>
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<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD &amp; Masters (annual enrolment)</td>
<td>570</td>
<td>20</td>
<td>2.100</td>
<td>76</td>
<td>LOW</td>
</tr>
<tr>
<td>Average Schooling</td>
<td>11,0</td>
<td>0,15</td>
<td>14,0</td>
<td>20</td>
<td>LOW</td>
</tr>
<tr>
<td>SIMCE Test (points)</td>
<td>240-250</td>
<td>1</td>
<td>300</td>
<td>55</td>
<td>LOW</td>
</tr>
</tbody>
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## Monitoring Framework

### Health

<table>
<thead>
<tr>
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<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Beds (per capita)</td>
<td>1.450</td>
<td>5</td>
<td>2.500</td>
<td>210</td>
<td>LOW</td>
</tr>
<tr>
<td>Infant Mortality (per 1000)</td>
<td>8-9</td>
<td>0.5</td>
<td>3-4</td>
<td>10</td>
<td>HIGH</td>
</tr>
</tbody>
</table>

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## Monitoring Framework

### Local and Small Community

<table>
<thead>
<tr>
<th>Area</th>
<th>Current Data</th>
<th>Trend of Progress Per year (2000-2009)</th>
<th>Target</th>
<th>Gap (Years)</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tocopilla Poverty (%)</td>
<td>11.7%</td>
<td>0.35%</td>
<td>5%</td>
<td>20</td>
<td>LOW</td>
</tr>
<tr>
<td>Colchane Poverty (%)</td>
<td>50%</td>
<td>0.35%</td>
<td>5%</td>
<td>120</td>
<td>LOW</td>
</tr>
<tr>
<td>SIMCE Mejillones</td>
<td>216</td>
<td>1</td>
<td>300</td>
<td>84</td>
<td>LOW</td>
</tr>
<tr>
<td>SIMCE Sierra Gorda</td>
<td>227</td>
<td>1</td>
<td>300</td>
<td>73</td>
<td>LOW</td>
</tr>
</tbody>
</table>

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## Monitoring Framework

### Institutional Development

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<th>Target</th>
<th>Gap (Years)</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Expenditure (US$)</td>
<td>1.200</td>
<td>100</td>
<td>4.500</td>
<td>30</td>
<td>LOW</td>
</tr>
<tr>
<td>Public Expenditure (% GDP)</td>
<td>5%</td>
<td>15%</td>
<td>30</td>
<td></td>
<td>LOW</td>
</tr>
</tbody>
</table>

CASEN, MINEDUC, MINSAL, INE, BANCO CENTRAL DE CHILE
Society must have a deeper view of the socioeconomic development in mining zones, to answer complex questions in relation to mining’s impacts and benefits.