

Looking for Transformative Innovation in the South: The Case of the Chilean Mining Sector

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Transformative Innovation

- Transformational Perspective: The use of innovation to favour changes in the way the economy and society evolves, beyond merely economic growth.
- Innovation that takes into account environment as well as social concerns like inclusion and equality. (Climate change and Social Networks acting as drivers)
- For economies based in natural resources, this vision may offer a new way into the knowledge economy:
 - Socially relevant issues
 - Enhanced role of public policy through norms and regulations
 - Enhanced negotiating capacity for the public sector

Background and Context: Basic STI Indicators Comparison

Chile vs. OECD: Basic STI Indicators

Indicator	Chile	OECD Average	(year of last figure)
GERD % PIB	0.39%	2.36%	(2013)
BERD % PIB	0.14%	1.61%	(2013)
Researchers per 1,000 inhabitants	0.79	7.77	(2013)
Patents per million inhabitants	0.52	27.0	(2011)
Medium-High and High Tech exports %	7.20%	21%	(2013)

Background and Context

- Public institutions supporting innovation in Chile are structured under a two-pillar model: Min of Education and Min of Economy.
- National Council of Innovation for Development (CNID) was established in 2005 to provide guidelines for innovation policy, advising the Presidency.
- The orientation of STI policies have privileged a horizontal approach and the use of competitive mechanisms.

Copper Mining as a Development Driver in Chile

- With over US\$39000 MM in sales, copper represented 51.2% of Chile's exports in 2014, and 30% of world supply.
- Impact of mining activity on the environment and communities has emerged as source of tension over the last years.
- Conviction that it is not possible to go on with "business as usual" approach, this led to building of agreement.

Mining: a Platform for Chilean Development

- Agreement built up with broad stakeholders participation
- The Agreement itself: a vision for a virtuous, sustainable and inclusive mining industry.
- Goals by 2035 and a detailed action plan. Short-term Agenda including actions to be taken on this current government mandate.
- Commitments publicly endorsed by the President.

Agreed goals by 2035

- i. Export of 130-150 billion tons of copper in the next 20 years.
- ii. 80% of this production will be positioned in the first two cost quartiles of the global industry.
- iii. 250 suppliers exporting world class tech for a total of US\$10.000 MM a year
- iv. Chile as a worldwide leader in sustainable mining
- v. Reduction of fresh water, gas emissions and energy demand compared to base year (2010)
- vi. Accomplishing a zero net biodiversity impact during the period.

Implementing the Agreement (1 year)

- Context: deceleration of China and significant copper price drop. Set of structural reforms initiated during 2014. Fiscal austerity policy.
- Main achievements so far:
 - *Consejo de Alianza Valor Minero, AVM.* (Mining Value Alliance Council).
 - Increased companies' engagement in suppliers development program
 - Increase in resources to finance new researchers in mining related issues (US\$3.5 MM).
 - Movement towards a shared value approach and more openness to real dialogue with the communities from the companies

Implementing the Agreement (1 year)

- Weaknesses:
 - Weak commitment of mining companies with R&D program.
 - Insufficient technical capabilities at the public sector => everything take longer time than expected.
 - Public – public coordination may be harder than with the private sector
 - Budgetary restriction affected public sector commitment

Conclusion: What have we learned so far?

- High profile Executive Secretary with fluent access to relevant stakeholders has been key to maintain the initiative.
- Important to build capabilities beforehand: some public sector offices are not up to the task.
- The former cum budget restriction => difficult to get new issues in the agenda.
- Greatest challenge: modification of the conceptual framework on which the State defines its role fostering innovation: not \$ but more negotiating power is needed.