Roundtable: Mining, sustainability and management of critical factors

Ian Satchwell, University of Santiago, Chile

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Overview

I am going to discuss mining and sustainability and some of the key factors for success, with a focus on water, energy, agriculture and community confidence.

I will give and Australian perspective about Australia's experiences, successes, shortcomings and even failures – most of which we have learned from.

Many but perhaps not all of these may be applicable in the Chilean or wider Latin American context.

This morning, the CEO of Codelco, Thomas Keller, highlighted key factors of competiveness for the copper industry in Chile: energy, water, labour, taxes and regulations.

These issues are all very familiar to Australians. So I hope that the subset of these issues that I discuss is relevant to Chileans.

Water

Australia is the second driest continent on earth. In several regions, we have a drying climate.

Three of the largest sectors of the economy – mining, energy and agriculture – are water intensive.

No water means no business for any of these sectors.

Also in Australia, we like our free-standing houses and large suburban gardens.

We use a lot of water and we run into conflict over water use.

The world has an interest in how Australia manages its water. Two big global issues – food security and energy security – are connected to water security.

Australia is a massive exporter of both energy and agriculture products so we owe it to the world to use water wisely and continue to produce the grains, meat, coal, gas and uranium that the world needs.

We know we need to understand the full value of water to our industries and communities (and we have not understood that well in the past).

We all know we need to use water more efficiently and to allocate it to highest value uses while maintaining the amenity that access to water gives to our people.

We are also keenly aware of the need to manage our agriculture, mining and energy production activities – as well as our urban environments – to avoid polluting water.

We need to manage our waste water well so as not to harm the environment or people, and also so that the water may be reused for other purposes.

But Australia's history has left us a legacy of undesirable outcomes:

- We have made assumptions and decisions despite poor information about water resources and have therefore not understood the consequences
- We have been inconsistent in our water planning: between jurisdictions and between user sectors
- We have over-allocated water so that more is used by agriculture and mining – and communities – than is sustainably available
- We have polluted streams and groundwater in ways that will take many years to remediate, and though poor land management, subjected thousands of square kilometres to salination and lost agricultural productivity
- We have failed to understand the links between water and other sectors such as energy; and between vegetation and water supply and uptake; and often have not taken into account the cumulative impacts of activities on water.

A bit depressing isn't it?

But we have learned a lot, applied the lessons, innovated and we are well on the way to achieving more sustainable water management across all sectors and importantly between sectors such as agriculture and mining.

We still have much to learn. And just when we think we're going well, along comes a new issue where decision-making and activity is getting ahead of knowledge and policy – currently the rapid development of unconventional gas, and its impact on water.

The National Water Initiative – or NWI – is Australia's roadmap for national water reform. It was signed by all governments – state and national – in 2004.

The NWI aims to improve water planning, management and allocation arrangements to benefit all users, including mining and energy operations.

It specifies more than 70 reform actions right across the water sector that are necessary to manage water sustainably for all users including the environment.

The NWI has several key features:

- It allows for *water allocation plans* that set out how water systems are to be shared and managed over time.
  - Water requirements, collection, storage and use by mining form part of that planning process.

- The NWI supports secure *water access entitlements* that providing mining operators—like other users—with greater certainty for obtaining water and in turn making future investment decisions.
- The NWI promotes *water markets and trading* that give industries opportunities to innovate and develop a portfolio of water market products where choices can be made between different reliability water, recycled water, temporary water or permanent entitlements.
- The NWI also encourages *regulatory arrangements* that are clear, transparent, and efficient – and clearly set out the roles and responsibilities of people and institutions.
- NWI also makes specific provisions for mining operators, recognising that mining operations may not always fit into the same framework as other more common water entitlements such as those for agriculture.
  - Eg, shorter duration entitlements, for water of lesser quality, for uncertain incidental water use, and multiple consumptive pools from water (multiple sources from within a planning area)

The NWI is well accepted and trusted by stakeholders and because it is so accepted, it also provides something of a social licence that businesses working under its principles reassure the public that they can operate safely, appropriately and bring benefits to the communities in which they operate.

In implementing the NWI over 10 years, the oversight body, the National Water Commission has drawn two key lessons.

- First, to be successful, water needs to be managed by cooperative action among a wide range of parties whose interests will not always be aligned.
- Second, a single integrated management framework like the NWI provides a connecting point for competing users and works across boundaries of jurisdictions as well as across sectors.

Mining and water

The Australian mining sector uses less than 4% of national water resources, but it can be a significant water user at a local or regional level.

The mining industry generates a very high value-add from the water it uses.

It uses a wide variety of water sources including surface and groundwater, saline groundwater, sea water and treated effluent.

Water used by the industry is not always valued by other users.

The mining industry uses innovative and sophisticated technologies in management systems, recovery, recycling and beneficial use and re-use of waters.

The industry has also been at the forefront of adopting a risk management approach to ensure that climate variability is factored into water management planning.

But the industry has a way to go to understand water and its critical value to all parts of its business.

And the community and other users like agriculture have misapprehensions about the impact of mining on water – and right at the moment about the impact of unconventional gas extraction.

In 2006 the Ministerial Council on Mineral and Petroleum Resources along with Minerals Council of Australia published a reform framework titled Strategic Water Management in the Minerals Industry.

It promotes a strategic approach to water management for mining and processing sites so that water could be more efficiently managed and valued as a vital business, community and environmental asset.

The framework is consistent with the principles contained in the NWI.

A reliable and consistent data set across all water users is an essential basis for good policy and effective resource management.

The new Water Accounting Framework developed for the mining industry by a colleague organisation Sustainable Minerals Institute of the University of Queensland (Centre for Water Management in the Minerals Industry [CWiMI]), the has made significant advances in achieving this aim.

Consistent water accounting for the Australian mining industry will deliver:

- Improved capability to report use of water resources in a consistent manner
- Regulatory reform to promote efficiencies in current reporting arrangements
- Benchmarking opportunities for operations to identify efficiency measures
- Increased recognition of industry as a responsible steward of natural resources
- Application of a robust framework for identifying water flows and their relationship with supply contracts, license conditions and climatic variables – and pricing arrangements
- Supporting strategic land use and water planning processes.

The Water Accounting Framework Toolkit was released in February 2014 – available from the website of the Minerals Council of Australia.

Energy

Australia is on track to become the largest global producer of LNG and is the second largest exporter of energy coal.

Therefore it may come as a surprise to many that Australia has a shortage of domestic energy and high energy prices – specifically natural gas.

This is holding back mining development as well as processing in several regions.

The issue is complex: production costs are rising, there are issues of matching the timing and aggregation of demand with supply, there are issues with risk sharing for infrastructure.

As well, net back returns for export gas are often higher than the domestic market will generate.

Only yesterday, the Premier of the state of Western Australia told the major offshore gas producers that they must commit to supplying more domestic gas in order to retain strong support of the government and the broad social licence to operate.

This is an issue that is certainly not on its way to being solved in the short term.

I hope to be able tell you before too much time has passed what we did to address energy shortages and high prices successfully.

And I look forward to learning from Chile about your experiences in new approaches to water and energy management.