



Chile needs better science governance and support

Its scientists have much to offer the world, but are being held back by scattered administration and changing policies, argues Pablo Astudillo Besnier.

With the World Cup over and football fans home from Brazil, the international spotlight will surely fade on South America once more. The continent is changing rapidly, but 1,000 kilometres southwest of Brazil, researchers in Chile would settle for just one step forward: a governance that promotes scientific development and a greater focus on science policy within the government.

Chile may seem distant from other nations when it comes to science. Yet, as countries across the world grapple with the problem of how to restructure their priorities in the wake of the financial crisis, Chile offers a warning about how science and innovation can stagnate without clear governance.

At first glance, science in Chile can seem strong. The country can be rightly proud of its world-class astronomers — highlighted in an article (see *Nature* 510, 204–206; 2014) in *Nature's* special on South America last month — and, as the government likes to point out, we are a highly productive player in Latin American science, ranking above Brazil, Mexico and Argentina in terms of the number of articles per capita.

Yet, despite the glossy images of the telescopes promising a high-tech future, in 2012, Chile spent just 0.35% of its gross domestic product on research and development (R&D) — the least of all countries in the Organisation for Economic Co-operation and Development. Two-thirds of the academic publications come from just five universities. And, perhaps most importantly, a heavy focus on applied science threatens to stifle basic research and its potential to innovate.

Put simply, science does not have a strong voice in Chile. Administration of science and research is scattered across government ministries. Without a ministry to coordinate and implement a national agenda, responsibilities have been unclear and policies are subject to disruptions and cancellations. As a result, opportunities for scientists to develop momentum are lost, as is a lot of quality work. As responsibility for science drifted through the hands of a variety of government officials, most tried to push the scientific agenda towards the needs of the industrial sector, disregarding the academic, political and social roles that science must also have.

This chaotic governance mirrors the broader political turmoil that the country has endured in recent decades. Our main funding body — the National Commission for Scientific and Technological Research — was created in 1967, perhaps one of the few moments in which the Chilean government saw science as a clear priority. However, political changes in the subsequent years ended its role as an advisory council, and it never recovered.

In 2005, the authorities did acknowledge that the governance of science and innovation was deficient, and tried to give it a more

defined structure, creating the National Innovation Council for Competitiveness and then a new interministerial committee. Following the advice of this council, and with the aim of using science to boost economic growth and competitiveness, the committee prioritized funds to promote clusters of research — including on processed foods, the mining and farming industries, and financial services. In this setting, scientists were never clearly heard.

Support for basic R&D has been inconsistent. The number of grants awarded by the National Fund for the Scientific and Technological Development (the main basic-research funding source) fell from a high of more than 500 in 1991 to around 350 between 2000 and 2005, but rose again after that.

The government elected in 2010 abandoned the cluster policy; its successor, which came into power earlier this year, has pledged to restart it. As well as making it hard to do quality research, the unsystematic approach means that projects and policies rarely run for long enough to be evaluated. As such, we do not know what impact — if any — they have had.

What we do know is that Chile's ranking in terms of innovation has fallen persistently in the past seven years. International reports confirm that the nation is overly reliant on the export of commodities.

Programmes related to R&D have been created without careful planning. An example is the scholarship programme for graduate studies both in Chile and abroad. Between 2008 and 2012, the government awarded more than 8,000 postgraduate scholarships. But fewer than 200 awards were

granted to incorporate scientists into the academic and industrial sectors. Where will all the newly qualified scientists work?

This is the conundrum of science in Chile.

Last year, we thought we had achieved a step forward. Outgoing President Sebastián Piñera had finally pledged to create a science and innovation ministry. Yet the new government has put the scheme on hold, and talks instead about strengthening the role of the ministry of the economy — an idea that lacks support and empirical evidence, and one that does little to increase the contribution of science to relevant public issues. Research and innovation are of course important for the economy and competitiveness, but that should not be the only focus of a science policy.

In Brazil, Chile's footballers impressed the watching world. Its scientists can do the same, but they need someone at the top to give them the chance. ■

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