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## Q&A: Science policy lessons from Latin America

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- Collaboration is replacing distrust between scientists and entrepreneurs
- Creating a science ministry too early can result in a drop in science funding
- Ten or 15 per cent of researchers should specialise in management

[MONTEVIDEO] Latin American teams have been achieving strong results at the World Cup in Brazil. But science in the region has been performing well too.

With Argentina, Brazil and Mexico leading the way over the past decade in regional research and development (R&D), Latin America is currently the second fastest growing region in the world for R&D investment (<http://www.scidev.net/america-latina/i-d/noticias/tres-pa-ses-concentran-92-de-inversi-n-en-i-d-en-la-regi-n.html>) (article in Spanish).

But the region still faces science policy challenges; challenges that have preoccupied Peruvian Francisco Sagasti for decades.

Sagasti was previously chairman of the UN Advisory Committee on Science and Technology for Development and chief of the World Bank's Strategic Planning division. He is now a visiting professor at universities in Latin America, Spain and the United States. Sagasti also wrote the book *Science, technology, innovation: Policies for Latin America*, which runs through the evolution of science, technology and innovation (ST&I) in the region from 1950 to the present.

*SciDev.Net* asked Sagasti what he has learned about Latin American science policy and how these lessons could inform the region's future direction.

**What lessons related to S&T policy has Latin America learned in past decades?**

The main lesson from 60 years of designing and trying to run ST&I policy is that creativity and intellectual knowledge are important — but not enough. Implementation capacity is also needed to work out how policy instruments will operate, what the motivations of the different actors involved are and how to create an environment to encourage change. It is necessary to complement the intellectual work with practical assessments in order to understand how to implement the designed policies.

**How did the region learn these lessons?**

In the 60s and 70s, we designed policies, proposed ideas and instruments, but when we put them into practice we found difficulties. For example, we saw that, although some instruments, such as tax incentives for companies to carry out R&D, were logical on paper, years later, after their implementation, we noted that the requirements and procedures to measure the tax exemptions, were so complex and expensive that only a few companies were able to use them. These companies were big businesses, with lawyers and engineers among their staff, who would have probably done R&D even without the incentives.

Then in the 80s and 90s, Latin America operated under pro-market policies, with the market expected to do everything, while the state did not participate. But we have learned that to make progress in ST&I, a balanced involvement of public and private agencies and civil society is needed. Many countries are still looking for this balance.

**You have said that policies designed to stimulate research in Latin America did not have the expected results. Was the main problem a disconnection between government, universities and business?**

I don't think so. In fact, there is a lot more collaboration nowadays between these groups in Latin American countries, but sometimes it is not recognised. The disconnect was a consequence of the logic of scientists who despised any practical application of their work and entrepreneurs who saw scientists as parasites who did nothing useful. This attitude was common from 1970 to 1990, but now it has changed and we see successful attempts at collaboration. Now we have to reinforce that.

**Another complaint is that science policy is not considered a state policy in Latin American countries, so it is liable to change with each new government. What do you think about this?**

This is a problem with all policies, but it is more serious in relation to ST&I policies. The reason is that in other areas it is possible to achieve things during one period of government, but when it comes to creating and using ST&I capabilities, the minimum period needed is 12 to 15 years. That is why it is more important to have a consensus to ensure ST&I policies survive beyond governmental changes.

**Based on this idea, several Latin American countries are trying to create science ministries. Do you think they are necessary?**

There are arguments for and against this idea and everything depends on the situation that a country is experiencing. If it is in the early stages of creating ST&I capabilities and it has a small, unconsolidated scientific community, what matters is that all public institutions support science and ensure that different existing ministries allocate more resources for scientific research within each area: health, industry, transport or any other.

When a ministry of science is created too early, the other ministries do not allocate the same budget to science. However, when there is already a critical mass of scientists and coordination is required, I think it is then an appropriate time to create a science ministry. Each country should assess its own stage of development and design the most appropriate institutional structure.

**You have said that young people, besides being trained as scientists, should also be trained as managers. How should this be done?**

First we must recognise the importance of ST&I management and administration, and this is something that most scientists unfortunately despise. This is a big mistake. Besides training them as excellent scientists, we need to train them as managers, able to work in ST&I companies, and also as policy specialists. Ideally, they should have a scientific background and then, at postgraduate level, they would specialise in management and policy, so they can understand how those they will manage later will behave.

Not everyone should have this training, but we must have a group able to manage projects, to choose instruments, to evaluate, monitor, support, give advice about intellectual property, and do business tasks. These issues require management skills in addition to specific technical and scientific knowledge. This is a gap in the region, perhaps with the exception of Brazil. I think that ten or 15 per cent of researchers should specialise in management.

*Q&As are edited for length and clarity. A version of this article was originally published on SciDev.Net's Latin America & Caribbean edition (<http://www.scidev.net/america-latina/>).*

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