Forty years in nothing in science and technology policy

Francisco Sagasti

A famous Argentinian tango says "twenty years is nothing", but a recent meeting in suggests that "forty years is also nothing" in science and technology policies. Francisco Sagasti, author of this note, was the Field Coordinator for the "Science and Technology Policy Instruments" (STPI) project during 1973-1976, and together with Mario Bazan, Executive Director of FORO Nacional Internacional, organized the STPI+40 event,

"I know what I need to do, but how do I do it? asked Carlos Añez, the new president of the Venezuelan Science and Technology Council at meeting of the Organization of American States in Cusco, at the beginning of 1972. Answering his question led to organize an international research project on science and technology policy during 1973-1976. More than 100 researchers from Argentina, Brazil, Colombia, South Korea, Egypt, India, Macedonia, Peru and Venezuela worked together in the Science and Technology Policy Instruments (STPI) project to improve the design and implementation of science and technology policy. The Canadian International Development Research Centre, the Organization of American States and the participating countries financed the STPI project, which was coordinated from Lima at a time when Internet, faxes and direct international dialing did not exist, and telex and mail were used for communication.

Onelia Cardettini, Carlos Contreras, Francisco Sagasti in 1974 at the Ministry for Foreign Affairs in Peru

STPI+40 gathered the original project team members in Paracas and Lima during August 3-7, 2013. We examined what happened with the results and dialogued with members of the new generation of science and technology policy experts. To our surprise, almost everything we learned forty years ago is still relevant today.

Geoffrey Oldham at STPI+40 meeting

According to KunMo Chung, former science and technology minister of South Korea, the experiences of Latin America and India helped his country to leapfrog in building science and technology capabilities. Public sector agencies forged ahead of the information and telecommunications revolution, well before the large technology-based Korean corporations like Samsung, Hyundai and LG began their expansion. Reports from India and Brazil indicated the results of the STPI project helped improve consulting and engineering design capabilities, and improved the financing of science and technology initiatives.

KunMo Chung at STPI+40 meeting

Fernando Chaparro, former President of the Colombian Science and Technology Council, told us the project built a group of experts that had a major influence in government policies during decades. The economic and political context in Mexico and Venezuela did not allow putting in practice all of the STPI lessons, but assisted in improving agricultural research and the management of public research institutes. In contrast, Peru forgot what was learned in STPI after a major economic crisis in the early 1980s, which together with terrorism, hyperinflation and the dismantling of public

research institutes in the following two decades, set back science and technology efforts for a quarter century.

What did we learn in STPI?[1] First, that *the role of the state is irreplaceable for science and technology development*. Nowhere in the world the market and the private sector have done this on their own, without the state playing major financing, regulating, executing, coordinating and planning roles. Second, that *public investments in high-level human resources are the key to success in science and technology*. Third, that *fiscal, tax, credit, trade, labor and other policies have an implicit science and technology policy content that frequently contradicts explicit science and technology policies*. Fourth, that *capacities in consulting and engineering design are fundamental to consolidate advances in science, technology and innovation*. In addition, we learned that tax incentives are less effective that direct public support to enterprises, that excessive regulation of technology imports is counterproductive, and that the importance of support services for research is frequently forgotten.

Mauricio de María Campos at STPI+40 meeting

Debates in the STPI+40 conference also demonstrated that political commitment at the highest level and a favorable economic context are essential for science, technology and innovation; that it is possible and most useful to learn from the experience of other countries; that it takes thirty years to

Geoffrey Oldham, Fernando Chaparro, Marco Kamiya and Xue Lan

[1] See the final report of the STPI Project at: http://idl-bnc.idrc.ca/dspace/handle/10625/3958

create and consolidate science and technology capacities; and that future challenges —climate change, demographic transition, and water, energy and food crisis, among many others— demand substantive science, technology and innovation capacities.[2]

Alberto Aráoz, Sergio Barrio, Francisco Sercovich

The STPI+40 meeting examined also how the context for science, technology and innovation changed during the last four decades, and ended up identifying areas for policy research that deserve international attention.

Personalities in the STPI +40 event

STPI+40 gathered a group of leading personalities: Geoffrey Oldham, one of the founders of science policy studies and professor at the University of Sussex; KunMo Chung, former Minster of Science and Technology and key figure in the technological revolution of South Korea; Mauricio de María Campos, Mexican former Director General of the United Nations Industrial Development Organization; Fernando Chaparro and Ignacio Ávalos, former presidents of the science and technology councils in Colombia and Venezuela, respectively; Eduardo Amadeo, former Minister of Social Development, former senator and former Argentinian ambassador to the United States; Alejandro Nadal, professor at El Colegio de Mexico and pioneer in the field of macroeconomics and environmental sustainability; Onelia Cardettini, who was in charge of the Environment portfolio at the creation of the Republic of Kosovo; Carlos Contreras, former Secretary General of the South America Peace Commission in Santiago de Chile; and Roberto Wangeman and Sergio Barrio, leading Peruvian intellectuals. Absent from the event were Anil Malhotra, former Scientific Advisor to Indian Prime Minister Indira Gandhi, and José Tavares, former Secretary of the Brazilian Chamber of Commerce. Four of the STPI national leaders have passed away: Nikola Kljusev, Prime Minister when the Republic of Macedonia became independent; Adel Sabet, former Deputy Minister of Science and Technology in Egypt;

[2] The STPI+40 material is available at; http://kind-cind.org/blogstpi/

Fabio Erber, former Research Director at FINEP, the leading science and technology financing agency in Brazil; and Kim JaeIk, Director of Economic Planning in the Republic of Korea, who perished in a terrorist attack in Burma in 1983.

Other participants in STPI+40 were Xue Lan, Dean of Public Policy at the University of Xingua in Beijing; Susan Cozzens, vice-Provost of Georgia Tech university; Amitav Rath, President of Policy Research International in Ottawa; Erika Kraemer-Mbula, of the Tshawane Technological University in South Africa; Tavinder Nijhawan and Ben Petrazzini, IDRC Staff members; Claudio Herzka, former president of the Institute for Entrepreneurial Action (IPAE) in Peru; Gustavo Crespi from the Inter-American Development Bank, and Marco Kamiya, from the Andean Finance Corporation (CAF); Fernando Villaran, former Minister of Labor in Peru; and Modesto Montoya, of the Peruvian Nuclear Physics Academy.

Marco Kamiya, Francisco Sagasti, Ignacio Ávalos, Carlos Contreras, Belén Baptista, Roberto Wangeman, Alejandro Nadal.