HOMEWARD BOUND

South American efforts to repatriate scientists are paying off.

BY BARBARA FRASER

When Andrea Bragas left Argentina in 2000 for a postdoctoral fellowship at the University of Michigan in Ann Arbor, she did not know where she would eventually end up. Although the terms of her fellowship obliged her to return home, Argentina's economy was heading for a crisis and there was no guarantee of continued government funding, much less a job when she came back.

But the gamble paid off. By 2004, Argentina's economy had started to rebound and the president was pledging new investments in science and technology. Bragas returned to teach at the University of Buenos Aires and is now a nanoscientist at CONICET, Argentina's National Scientific and Technical Research Council.

Across South America, thousands of researchers have similar stories. Countries that saw some of their most promising scientists flee during decades of dictatorships or economic crises are now reversing the brain drain, luring researchers home with offers that range from short-term teaching and research fellowships to fully equipped labs and competitive salaries.

"Unlike financial capital, which is hard to recover once it has left the country, intellectual capital returns with interest," says Lino Barañao, Argentina's science and technology minister. "A scientist who has spent some years outside the country has training, networks of contacts and access to top institutions — and from a productivity standpoint can be more valuable than one who has stayed in the country."

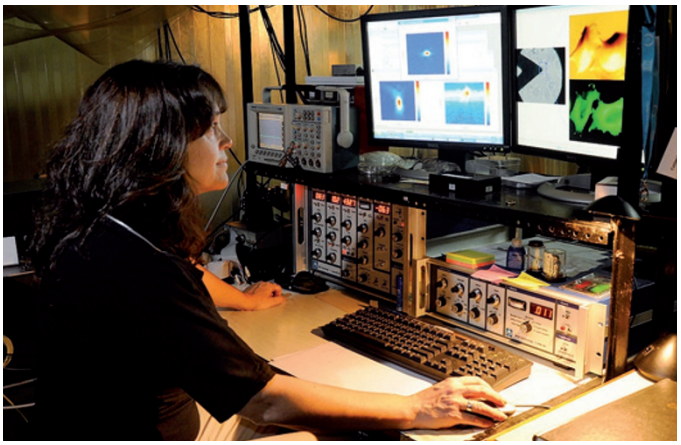
Brazil was one of the first South American countries to invest in building a base of researchers. When Lindolpho de Carvalho Dias attended the first Brazilian Mathematics Colloquium as a student in 1957, he was one of about 50 participants in a country that had few universities and no graduate programmes in science.

But the government was taking major steps to close the education gap. In the early 1950s, it created the National Council for Scientific and Technical Development (CNPq) and launched a higher-education campaign. Since then, Brazil has paid to send students abroad for graduate study, with the commitment that they would come back to teach and do research. Many of those who returned became staff members in new graduate programmes and the country has ramped up its production of scientists and engineers. The number of doctorates awarded in those fields per year nearly doubled between 2001 and 2011.

As a measure of the country's scientific growth, the mathematics colloquium currently draws about 1,000 participants a year. And research institutes in Brazil now attract both home-grown and foreign talent, adds Dias, who has served as director of the CNPq and as executive secretary of the Ministry of Science and Technology.

Like Brazil, Argentina has long sent students abroad for graduate education. But the country has only recently devoted sustained and coordinated funding to provide opportunities for returning researchers like Bragas. The science ministry now runs a programme called RAICES ('Roots') to encourage researchers to return home with offers of fully equipped laboratories and salaries comparable to those in the United States and Europe.

So far, 1,062 Argentinean scientists have returned. Most have gone to public universities or research centres, although Barañao expects that to change as Argentina's private technology sector cranks up. The employer usually provides laboratory facilities, and RAICES pays moving costs and subsidizes salaries for a few years. As an added incentive, it also helps with placements for spouses.



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Andrea Bragas in her nanotechnology laboratory.

In Chile, the Millennium Scientific Initiative — launched in 1999 — has set up centres of excellence and offers study-abroad fellowships with a commitment to return home to work. It has also established a programme called ChileGlobal, which lets Chilean scientists network at home and abroad through seminars and other activities.

Countries with smaller science budgets are also experimenting with ways to repatriate researchers through fellowships, networking and incentives. In March, Colombia's Department of Science, Technology and Innovation announced the US$9-million 'It's Time to Return' repatriation programme. The initiative offers research posts in various fields, and hopes to lure back 500 Colombian PhD holders in its first two years.

Although brain-drain-reversal programmes take different forms, Barañao says that the key is to harness the expertise, contacts and experience of researchers outside the country — many of whom were educated at least partly at the taxpayer's expense — while expanding research facilities and opportunities at home.

Ultimately, the long-term success of these efforts may depend on the willingness of governments and companies to increase research investments, which have been climbing only modestly relative to gross domestic product in most South American countries. "You have to create a competitive research environment with top-quality, interdisciplinary research centres," says Barañao. "Even if you offer a good salary or pay relocation expenses, without those conditions, a good researcher won't return." ■

Barbara Fraser *is a freelance writer in Lima.*