SCIENCE INDICATORS

NSF Report Paints a Global Picture

Think of it as everything you ever wanted to know about the global scientific community—but didn't even realize you could ask for.

The 2002 edition of the National Science Foundation's (NSF's) biennial *Science and Engineering Indicators*, an 1100-page behemoth report that includes a CD-ROM, hit the streets this week. The new volume, the 15th in a series, provides a banquet of data for science aficionados worldwide. But it also remains true to its humble origins as a report to Congress on the state of U.S. science.

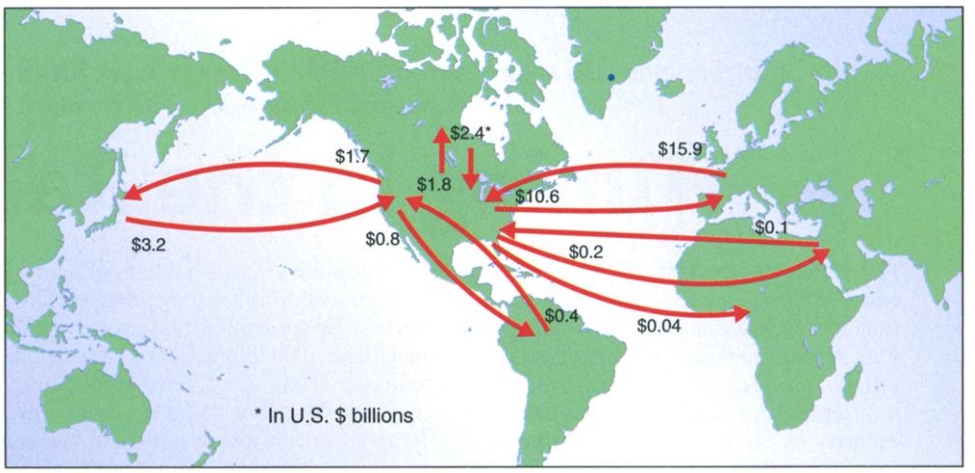
Thus, not far from an analysis of how many foreign-born Ph.D.s trained in the United Kingdom return to their countries of origin is a summary of the billion-dollar habit of U.S. legislators to bring home the research bacon for their constituents, a widely reviled but extensively used practice known as earmarking. The National Science Board, a presidentially appointed oversight body and the official publisher of *Indicators*, also isn't above plugging its own work, in particular, three ongoing studies that examine workforce issues, infrastructure needs, and international collaborations.

This year's *Indicators* offers fresh insights on several familiar topics. For example, it shows a shift in the worldwide flow of scientific talent and an increase in capacity within the developing world. China's domestic universities, having recently overtaken Japan, are now the world's fifth-leading producer of science and engineering doctorates; they are poised to surpass France and the United Kingdom for third place, behind the United States and Germany. "It's time to discard the idea that the United States is the vacuum cleaner for the world's students," notes NSF's Jean Johnson, co-author of the chapter on higher education.

The report also examines a country's commitment to primary and secondary school science and mathematics education with a scatter plot of teacher salaries in relation to a country's overall wealth: In Korea, Switzerland, and Spain, teachers earn twice the per capita gross domestic product, whereas their counterparts in Norway and the Czech Republic earn below-GDP rates. U.S. teachers are paid just above the GDP rate.

The report, in eight chapters, covers the life of a scientist from preschool to retirement, as well as the factors—from patenting to public understanding—that shape the scientific environment. It's available online at www.nsf.gov/sbe/srs/seind02/start.htm.

–JEFFREY MERVIS



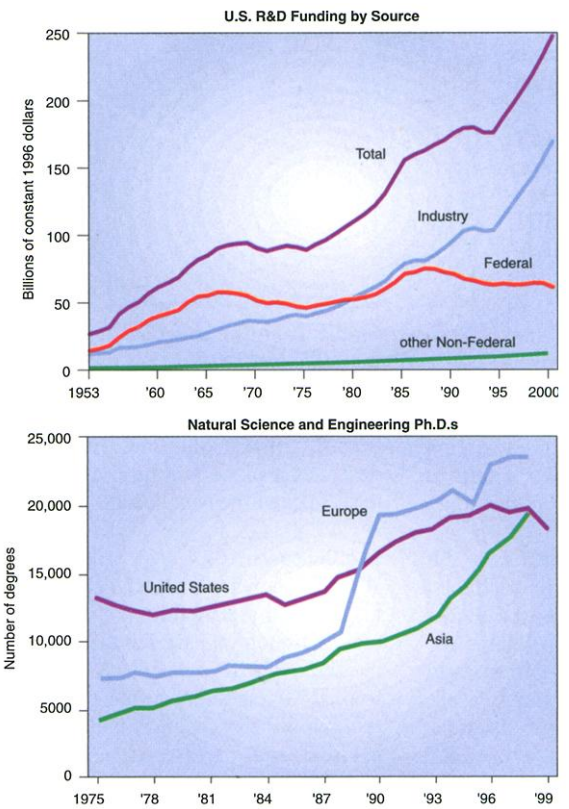
Spending flows. U.S. affiliates of foreign companies performed $22 billion worth of research in 1998, almost 50% more R&D than do foreign affiliates of U.S.-owned companies. The two totals were practically even in 1994.

THE NEXT STOP FOR FOREIGN DOCTORATES

Country of origin	Total recipients	Percentage returning home
United Kingdom (1998)		
China	208	59
Malaysia	145	99
Germany	146	57
Greece	118	64
Iran	127	89
United States	80	75
Turkey	124	100
Canada	59	71
Taiwan	82	95
Ireland	61	45
United States (1999)		
China	2187	10
India	888	10
South Korea	738	37
Taiwan	732	38
Canada	283	28
Turkey	186	41
Germany	179	35
Mexico	158	69
Brazil	156	69
United Kingdom	141	21

NOTES: U.S. data are for foreign students with no plans to stay in the United States. Foreign students include those on either permanent or temporary visas.

SOURCES: NSF



Trend lines. The sharp rise in overall U.S. spending on research since 1980 is driven by a huge jump in the last 5 years in investment by industry (*top*). Asian production of science Ph.D.s, led by China, now tops Ph.D. production in the United States on an absolute basis. Both trail Europe (*bottom*). Foreign students are much more likely to head home after earning their Ph.D. in the United Kingdom than the United States (*left*).