SCIENTIFIC PUBLISHING

Publications and Expats Warn Of Russia's Dangerous Decline

Russian researchers at home and abroad have long warned that Russian basic research is in a dangerous, even terminal, decline. Last week, information provider Thomson Reuters confirmed their fears, releasing an analysis* of worldwide publications that shows that Russia's research output has continued to slide since the demise of the Soviet Union. After a peak of more than 29,000 papers published in 1994, the total slumped to 22,000 in 2006, although it bounced back somewhat in the following 2 years. In the 5 years from 2004 to 2008, Russia produced only 127,000 papers, 2.6% of the world's total. During that time, Russia ranked behind countries such as China (8.4%), Canada (4.7%), Australia (3.0%), and India (2.9%) and was only slightly ahead of the Netherlands (2.5%).

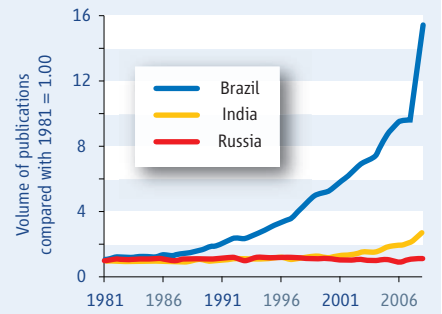
The authors say that Russia has slipped because of chronic underfunding by the national government, an aging scientific workforce, lack of public respect for science, and a devastating brain drain in the early 1990s, in which tens of thousands of researchers left the country, mostly to go to Western Europe. "One wonders how vulnerable the whole Russian system is," says Jonathan Adams, one of the report's authors.

The report compares Russia with Brazil, India, and China because Adams and co-author Christopher King say all four could become front-rank economies with their vast resources and potential for growth. But while the other three countries have seen the number of their scientific publications rise, Russia's has stagnated (see graph). Among the different research fields (see table), former Russian strengths in the physical sciences and engineering have shown the steepest declines, while some fields in biology, medicine, and environment have grown.

Last year, some expatriate Russian scientists sent President Dmitry Medvedev and Prime Minister Vladimir Putin a letter warning of "the catastrophic conditions of fundamental science." Particle physicist Alexander Belyaev of the University of Southampton in the United Kingdom, one of the authors, says there was a positive reaction—the president mentioned the letter in speeches—but little has changed. "The government doesn't seem to understand the difference between fundamental and applied science," he says. Grad students don't get enough to live on, Belyaev says, so anyone who is serious is forced to move abroad. More than 190 scientists have signed the letter online. **–DANIEL CLERY**

*"Russia: Research and Collaboration in the New Geography of Science," http://researchanalytics.thomsonreuters.com/grr/.

RACE WITH INDIA & BRAZIL



On the up? Russia's publications are lagging behind similar countries, especially China (omitted because growth so steep).

RUSSIA'S TOP FIELDS BY WORLD SHARE OF PUBLICATIONS 2004–2008

FIELD	PAPERS	WORLD SHARE (%)	% GROWTH FROM 1999–2003
Physics	34,548	7.39	-8.6
Space Science	4122	6.9	-.05
Geosciences	9213	6.76	6.2
Chemistry	28,564	4.87	-3.2
Mathematics	5795	4.63	2.8
Materials Science	7594	3.28	-6
Engineering	9095	2.3	-21.5
Microbiology	1622	1.99	1
Molecular Biology & Genetics	2729	1.97	-4.4
Biology & Biochemistry	4998	1.84	-9.3
Neuroscience & Behavior	1699	1.16	51
Plant & Animal Science	3163	1.17	4
Environment/Ecology	1411	1.07	25.4
Computer Science	1481	0.99	-5.7

SOURCE: THOMSON REUTERS

ScienceInsider

From the *Science* Policy Blog

*Science*Insider has analyzed the Administration's budget proposals for individual agencies in a series of postings throughout the week.

Philanthropists **Bill and Melinda Gates** have spent some $4.5 billion on vaccine research, development, and delivery since creating their foundation in 1994. Now they have pledged to spend a total of $10 billion over the next decade. Goals include increasing vaccination rates for measles, *Haemophilus influenzae* type B, pneumococcal disease, and rotavirus while rapidly introducing a new malaria vaccine by 2014. http://bit.ly/9yvhDD

China's top climate negotiator, Xie Zhenhua, said he had an "open mind" on whether humanmade carbon emissions were contributing to climate warming. The comment came during a meeting of four key developing nations that were meeting to firm up plans to voluntarily cut greenhouse gas emissions under the nonbinding Copenhagen Accord. http://bit.ly/agvbvo

Senator Ben Cardin (D–MD) has introduced a bill that would repeal a provision of the Recovery Act that exempted the National Institutes of Health from the normal 2.8% set-aside to fund the **Small Business Innovation Research** grants programs, which covers 11 federal agencies. Cardin's bill would require NIH to spend $150 million of its Recovery Act money on such grants. http://bit.ly/9I8LL4

Baylor College of Medicine (BCM) in Houston, Texas, has decided to remain an independent institution after flirting with joining Rice University or Baylor University in Waco. Many faculty members at nearby Rice fiercely opposed the first proposed merger; BCM faculty members, students, and alumni opposed a possible alliance with Baylor University, arguing that the Baptist university's religious mission was in conflict with that of the medical school. http://bit.ly/b1D0y0

For the full postings and more, go to **blogs.sciencemag.org/scienceinsider**.

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