As US cuts back, China aims to be top at science

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This picture taken in 2009 shows a masked worker in a lab coat sorting silicon wafers at the manufacturing centre of solar cell maker Trina Solar in Changzhou. China has its eye on becoming the top science nation in the world, a position held for decades by the United States and European nations, researchers at a US science conference said Friday.

China has its eye on becoming the top science nation in the world, overtaking the United States and European nations, researchers at a US science conference said Friday.

After being the world's main source of cheap manufactured goods, China is investing heavily in science and technology.

"China hopes to become one of the leading sources of intellectual property in coming years," said Denis Simon, a professor at Penn State

University who is also the science and technology adviser to the mayor of the Chinese city of Dalian.

At a time when the United States and Europe are hamstrung by shrinking budgets, China has increased spending on science and technology "significantly," Simon said at the annual meeting of the American Association for the Advancement of Science (AAAS).

"The Chinese have indicated that by 2020 they hope to spend around 2.5 percent of GDP (gross domestic product) on research and development," said Simon.

In the United States, meanwhile, Republican lawmakers are talking about trimming a billion dollars from the National Institutes of Health, the world's largest public research institute, and slashing funds for other science and research agencies, in a bid to narrow a trillion-dollar US deficit.

That is at odds with the billion-dollar boost President Barack Obama proposed for science and health research in his 2012 budget.

The Republicans also want to slash funds for education by some $5 billion, even though Education Secretary Arne Duncan has warned that the United States must better educate its kids, especially in science and math, or risk becoming uncompetitive in the global economy.

A report last year showed the United States has slipped from second place to 13th out of 34 countries in the number of students enrolled in university, and that it was stagnating in science teaching -- in 17th place -- and doing poorly in math, in 25th place.

The Chinese city of Shanghai, which was considered a country for the education report, made its debut in the rankings in first place.

More Chinese are enrolling in universities, which means there will "be more researchers in China than there are in the US," which will drive up Chinese scientific output and the quality of the reports, said Penn State professor Caroline Wagner at the AAAS meeting.

In another sign that China is serious about moving into the top slot for science, the number of quality scientific papers coming out of the country -- measured by how often they are cited in other studies -- is growing exponentially.

How often a peer-reviewed scientific report is cited by another scientist is considered a key measure of quality, Wagner said.

The number of Chinese papers being cited is up, while the number of citations of US or European reports is declining.

In sheer volume of work, China already produces more research papers in the fields of natural science and engineering than the United States, which is overall the biggest producer of scientific reports in the world, said Wagner.

"But based on current trends, China will publish more papers in all fields by 2015," Wagner said.

But there are obstacles standing in the way of China becoming the world's leading science nation.

Among them, China has to overcome a massive brain drain, which sees nearly three-quarters of Chinese who travel abroad to study staying overseas, and a culture of fabrication and plagiarism among Chinese researchers, that Simon said could be driven by intense pressure and competition.

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