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Chinese Science on the Move

ONE OF THE WORLD'S FASTEST-GROWING ECONOMIES IS ALSO THE WORLD'S fastest-growing supporter of scientific R&D. As of last year, China had moved to third place in the world in national R&D funding, closing fast on Japan, which was number two behind the United States. Not surprisingly, this rapid development has been garnering worldwide attention but also some concern. Although there are people who feel threatened by any competition, others are more reasonably worried that China's continuing rise may be at the expense of broader global societal issues, such as environmental protection, natural resource use, and research integrity. But overall, the rapid rise in Chinese science is good for China and the rest of the world, and the global scientific enterprise should do all it can to help.

As with all developing countries, recent progress in Chinese science has not always been smooth. Entire systems for local science and international cooperation had to be developed and are still evolving. But the rapid increase in R&D investment—with an annual growth rate of 18% over the past 5 years (the United States, Japan, and the European Union grew at a combined average rate of about 2.9%)—reflects a clear understanding by China's top political leadership that science and technology (S&T) are critical to their nation's future. This is not surprising because so many Chinese leaders are scientists and engineers by training. Educated as an engineer, Chinese leader Hu Jintao emphasizes the importance of investing in S&T in virtually every policy address. He included in his 2006 list of “do's and don'ts” for the Chinese populace: “Uphold science; don't be ignorant and unenlightened.”

It's not just about increasing investment. China has long encouraged young researchers to go abroad for training, and many have stayed in their adopted countries. The Chinese government is now working hard to recruit the brightest and best-educated back to their homeland with job opportunities and state-of-the-art facilities and equipment. On a recent visit to Zhejiang University, we saw that laboratory equipment in virtually every discipline was equal in quality, if not yet in abundance, to that anywhere in the world.

China knows that integration into the world scientific community is key to its future success as a nation, and Chinese science leaders clearly welcome partnerships to ease this process. At the end of September, the American Association for the Advancement of Science (AAAS) and the China Association for Science and Technology held a conference in Beijing on “Scientists' Social and Ethical Responsibilities” to explore how ethics standards and regulations could be aligned across countries and regions of the world. Minister of Science and Technology Wan Gang recently called on Chinese universities, government, and scientific journals to join an Advisory Committee on Research Integrity. These actions should inspire further initiatives that will ease formal collaborations between Chinese scientists and those in other countries.

This progress is good for China and for the rest of the world. S&T are embedded in every major societal problem, from the spread of infectious diseases, to environmental sustainability, to alleviating poverty. Many countries, including the United States, Canada, Australia, members of the European Union, and some in Africa, already have scientific partnerships with China. These collaborations are likely to grow, because they are focused in disciplines that have potential influence not only in each partner's country but internationally, including nanotechnology, biotechnology, and pharmaceutical development.

As China and other rapidly developing countries increase investment in S&T, researchers from other countries should help smooth the emergence of local science communities and their integration into the global science enterprise by reaching out for partnerships and collaboration. S&T are the foundation for innovation, economic growth, and quality of life in all parts of the world. And although there will be pressure in some circles to focus inward, it would be “unenlightened” and, in fact, counterproductive to view integration across the global science community as anything but helpful to all.

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