Science, Technology, Education and Health News from China

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Introduction

This month's newsletter features Chinese State Council's new guideline on science and technology management reform. In education, the public is concerned about education quality as the number of postgraduate students doubled in 10 years. Two new universities were unveiled in Shanghai, including Shanghai New York University, the first China-US joint venture university and Shanghai Technology University, a partnership between the Chinese Academy of Sciences and Shanghai Municipal Government. In science and technology, China's renewable energy industry is experiencing growth bottleneck. A survey in U.S. tried to underline the characteristics in the migration of scientists. In health, mainland students in Taiwan are to be covered by Taiwan health care system.

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[1] Please click on the blue texts to activate the hyperlinks to either email addresses or related websites.

Story of the Month

State Council Publishes Guideline to Reform and to Promote Innovation

Following the National Innovation Conference which was held in July 2012, the *Guideline on Deepening Reform on Science and Technology Administration System* issued by the State Council during the conference was finally published in the end of September. The guideline was an indication on the motivation from the top decision-making body to reform the administration of science and technology in order to diminish the barriers of innovation.

Latest statistics released by the State Statistics Bureau have confirmed the consistent commitment of the Chinese government to boost science and technology development. Compared to 2010, R&D expenditure in 2011 increased by another RMB 162.4 billion to reach RMB 868.7 billion, maintaining the over 20% annual growth since 2006. R&D budget for universities, research institutes and businesses all received a double digit boost. On top of generous financial support, policy reform is another important aspect in unleashing the innovation capacity.

From the central government level, the overall goal is to establish a high performing, well structured national system of innovation in which all actors in the field of science, technology and innovation interact closely. To this end, policies will be drafted and implemented to enhance better communication and coordination between relevant organizations and among all levels of governments in order to improve synergies and optimize resource allocation. Reforms will be implemented in national science and technology project management, science and technology funding management, appraisal & review guidelines and personnel management to create a better infrastructure and environment for innovation.

Local governments are already playing an increasingly active role in facilitating innovation as they have already been increasing R&D expenditure in the past few years. Their responsibilities are expected to further grow in this aspect as “regional innovation” has been listed as one of the key words in the new guideline. Local governments are encouraged to bring together innovation actors in the area—such as science parks, universities, research institutes and businesses—to contribute to an innovation-driven regional economy.

In the same way, universities and research institutes which are traditionally “centrally owned” academic institutes directly under the supervision of State Council or relevant Ministries, are also required to further integrate with their respective local and regional economies through strengthening coordinative innovation, offering consulting services to local governments and businesses and developing curriculums that suit local needs. Personnel exchange between academia and industry is encouraged for closer links. Universities and research institutes have also adjusted personnel management policy to support spin-offs generated by researchers as well as students.

As it has been repeatedly emphasized, businesses are at the center of the national system of innovation that China is mapping out. Large corporations are perceived as the backbones of industry innovation, the major source of industry R&D investment as well as the industry participants to national science and technology programs.

On international cooperation, in addition to the on-going support for international research institutes and companies to establish R&D centers in China, Chinese enterprises and research institutes are now encouraged to set up oversea research facilities, which is a new element in the innovation guideline. Chinese researchers are also pushed to initiate and/or join large-scale international science project, to propose and/or participate in international standard setting and to more actively engage in joint research activities.

News

1. Postgrads Double in Decade, Triggering Quality Concerns

(Xinhua, 21-10-2012)

An increasing number of postgraduate students is triggering concerns over the education quality in Chinese universities. According to the Ministry of Education, about 517,000 postgraduate students were enrolled in 2012, over 220,000 more than in 2003. Postgraduate students in some leading Chinese universities have outnumbered undergraduates, according to the latest research report issued by Wuhan University, based in central China's Hubei Province.

At Tsinghua University, one of China's most elite universities, the ratio between the undergraduate and postgraduate students currently stands at 0.61 to 1, said the report quoted by Sunday's *Wuhan Evening News*, a local daily. In the country's top ten universities, including Tsinghua University and Peking University, students graduating from postgraduate programs last year outnumbered those finishing undergraduate programs. For instance, the number of students that graduated from postgraduate programs in 2011 was about 2,500 more than that for undergraduate programs at Peking University, and the figure stood at 2,800 at Renmin University of China.

Moreover, Wuhan University had 7,704 postgraduate vacancies and 7,650 undergraduate vacancies this year. The increase in postgraduate students has posed great challenges to faculty. According to the report, 15.7 percent of university professors are supervising more than ten postgraduate students each, and 1 percent of them are supervising more than 20 students each. The appropriate number of postgraduate students for one professor is three and the maximum is six, or the professor will not be able to control the quality of his or her work, said Qiu Junping, director of the Research Center for Chinese Science Evaluation at Wuhan University, which issued the research paper.

The sharp increase in vacancies for postgraduate programs is believed to help hold some of undergraduate students back from entering the tough employment market, but some universities also see it as a source of revenue. According to a report on the employment of college students in 2009 and 2010, issued by the Ministry of Education, the employment rate of postgraduates was lower than that of undergraduates in the two years. "Chinese universities are hoping to improve their research capabilities, but this does not depend on the number of postgraduates," Qiu said. The most urgent issue is controlling the number of postgraduate students and improving the quality of education, he added.

(http://news.xinhuanet.com/english/culture/2012-10/21/c_131920127.htm)

2. Global Mobility: Science on the Move

(Nature, 18-10-2012)

What policy-makers eager to attract foreign scientists — or stem a loss of domestic talent — most want to know is what entices scientists across borders.

In the GlobSci survey, migrants uniformly put the same two factors at the top: opportunities to improve their career prospects and outstanding research teams. The excellence of the foreign institution was also important, with quality of life and other personal reasons coming further down the list. For those who had migrated abroad and subsequently returned to their country of origin, however, personal and family reasons scored highest. […]

US science-policy experts are asking how long the nation can retain its grasp on foreign talent. The country's largest contingent of foreign doctoral students in science comes from China, and research by Mike Finn, an economist at the Oak Ridge Institute for Science and Education in Tennessee, shows that for now, most stay on. Studying a cohort of Chinese scientists who had received their PhDs in 2004 showed that five years later, 89% were still in the United States.

Higher salaries may be the biggest attraction. Robert Zeithammer, at the Anderson School of Management at the University of California, Los Angeles, has surveyed almost 300 Chinese science students studying for their doctorates in the United States, asking them for their reactions to hypothetical job offers from the two countries. “Chinese doctoral graduates currently tend to remain in the United States because of a large salary disparity between the two countries rather than because of an inherent preference for locating in the United States,” he concludes.

But as China continues its economic rise and builds its science infrastructure, the situation may change. Data from China’s Statistical Yearbook show a slight uptick in return rates of Chinese students from abroad over the past few years (although the data do not single out scientists), notes Cong Cao, a sociologist at the School of Contemporary Chinese Studies at the University of Nottingham, UK. However, there is no sign yet of any overall decline in stay-rates in the United States. The proportion of foreigners who say that they have “plans to stay” after graduation has gone up, not down, over the past decade.

And the lure of China remains faint for non-Chinese scientists. Nature’s survey (which drew responses mainly from the United States and Europe) asked researchers which countries would be producing the best science in their field by 2020, and more than 60% of respondents in both biological and physical sciences picked China as an option. However, only 8% said they would be prepared to relocate to China — instead preferring the United States, Europe, Canada and Australia. Responses suggested that China is unappealing for foreign researchers for political and cultural reasons, despite high expectations for the future quality of its research.

Such a disparity could be dangerous, says Jonathan Adams, director of research evaluation at Thomson Reuters based in New York. If researchers in Europe and the United States do not spend serious time in China, he says, they will find it hard to understand how research is conducted there, even as the country’s influence in science grows.

Those who study scientists’ mobility argue that the discussion need not pit nation against nation, as if China’s gain is the United States’ loss. In place of ‘brain drain’ and ‘brain gain’, they prefer to talk about ‘brain circulation’, in which international scientists dip in and out of countries at will, and everyone benefits from the collaboration. “Of course America will decline in relative terms, as the United Kingdom has, but it will do enough leading-edge research to benefit from work done elsewhere. The key thing is to have a strong-enough science base to interact with a globalized and mobile scientific world.”

[…]

(http://www.nature.com/news/global-mobility-science-on-the-move-1.11602)

3. Power Cuts

(Nature, 03-10-2012)

These are testing times for the renewable-energy boom in China. On August 3rd, the head of a Chinese solar-energy company committed suicide because his firm couldn’t pay off a loan. Last month, LDK Solar in Xinyu City cut its earnings forecast for the second consecutive time, and watched its stock drop to one-quarter of what it was a year ago after it defaulted on payments. Suntech Power in Wuxi, the world’s biggest producer of solar panels, announced plans to slash production and was forced to accept a loan worth US$32 million from the local government to stay afloat. China’s wind-turbine manufacturers are also being forced to watch sales drop in an overcapacity market.

China — which produces more solar panels and wind turbines than any other country — likes to promote its renewable-energy industry as a glowing symbol of a technology-driven, green future. But, over the past few years, a glut in the international market, a drop in prices and import tariffs introduced by countries including the United States have left companies with over-supply and debt.

Observers have jumped on the downturn with criticisms of how the Chinese government has supported and protected renewable-energy companies. A widely quoted piece in the Shanghai-based newspaper *First Financial Daily* claimed that the slump signaled the “imminent collapse” of the country’s

photovoltaics industry. A gloating editorial in *The Wall Street Journal* in August used events in China to warn the US government against support for its own renewables industry.

Strong stuff, but perhaps not unexpected. It is clear that some companies overshot the market, and there are some grounds for claims that China has engaged in unfair trade practices. When the country entered renewable energy, it instituted protective measures such as requiring that 70% of turbines sold in China be produced with domestically made parts, but those measures have been removed. Many renewable energy firms have failed and can no longer be propped up by supportive local governments.

However, it is foolish to decide that China's renewables industry has been — or will be — a failure on the basis of its current problems. The scale of some of these problems has been overstated. The Wall Street Journal, for instance, blamed decreased revenue at power companies on underperformance at wind farms, when in fact it had more to do with the increasing price of coal.

By whatever means it has been achieved — and whatever else might be said about it — China's investment in renewables has been a remarkable project. Just seven years after a renewable-energy law threw government support behind the industry, China went from having almost no stake in the international market to leading the manufacture of solar photovoltaics and wind turbines, in very competitive industries. China has developed know-how and manufacturing bases: it has the engineers, set up the targets and it is ready to lead the industry into the future. Some 62 gigawatts of wind power are currently installed — more than in any other country — and the government has set a target of 200 gigawatts by 2020. Until now, nearly all of China's photovoltaic units have been exported; domestic use has increased but remains at a relatively low 3.1 gigawatts. However, an upgrade of long-distance power lines, to transfer energy from wind farms or megasolar plants in the west of China to the energy-hungry east, was approved last year.

Chinese renewable energy has certainly hit a low point. Many of the more than 80 companies that produce wind turbines will probably have to close. But what *The Wall Street Journal* called a waste of time and money can be seen as healthy competition in an immature market. As China's renewables industry reorganizes and restructures itself, there may be reasons not to emulate it. But the government, for reasons relating to pollution, climate change and energy security, is firmly behind the industry. And it has built itself a solid platform from which to push on.

(http://www.nature.com/news/power-cuts-1.11515)

4. First China-US University Founded

(Xinhua, 15-10-2012)

Shanghai New York University (NYU Shanghai) was founded on October 15th in China's economic hub, showing China's dedication to the cultural and educational sectors. As China's first Sino-U.S. university operating as an independent legal entity, New York University and the Shanghai-based East China Normal University (ECNU) will jointly operate the institution. "NYU Shanghai will be a 'melting pot' for cultivating innovative talents from China and the rest of the world," said Yu Lizhong, president of NYU Shanghai.

The campus, located in the Lujiazui Finance and Trade Zone in Shanghai's Pudong New Area, is expected to welcome its first group of 300 undergraduates, including about 150 from the Chinese mainland by next fall. About 40 percent of both its student and faculty populations will come from abroad. NYU Shanghai is positioned as "a beneficial attempt in, and exploration of, building a high-level Chinese-foreign cooperative university," according to China's Ministry of Education.

Upon graduation, students will receive degrees from New York University, and NYU Shanghai will grant each student a graduation certificate and a degree. The university's syllabi and curricula follow examples set by world-leading universities and feature a well-rounded education, English lectures and courses with Chinese characteristics. Moreover, the university offers a liberal arts education, as all students will take courses in the humanities and social as well as natural sciences before choosing a major. The student to faculty ratio in the university will be eight to one, or double the average seen in Chinese universities, Yu

said. Its assessment of student applications will be based on students' performances on China's national college entrance examination and in a NYU-style student screening process.

According to plan, the annual tuition for each student from the Chinese mainland will be about RMB 100,000 (about USD 15,950), which is less than what most international students pay to attend many U.S. universities. Tuition fees will be officially announced after being approved by the Shanghai municipal pricing authorities. The university will accommodate an estimated 3,000 Chinese and international students in the future.

(http://www.reuters.com/article/2012/10/17/us-china-nuclear-safety-idUSBRE89G04O20121017)

5. Temperatures Rise Over Mainland Access to Taiwan Health Care

(Wall Street Journal, 16-10-2012)

Taiwan is desperate to lure mainland Chinese students to prop up sagging university enrollments, but the government's latest proposal to entice them – offering access to the island's cherished universal health care system – has some Taiwanese feeling feverish.

Established in 1995, Taiwan's National Bureau of Health Insurance has had several near-death experiences owing to many years spend deep in the red. Thanks to a massive overhaul of the system a few years ago, the bureau is now very much alive with NT$15.9 billion ($545 million) in revenue as of the end of September. […]

If approved by the legislature, the proposal would allow Chinese students who stay in Taiwan for more than six months to change their status from "visitor" to "resident." As residents, they would be eligible to participate in a program in which they would pay 60%, or NT$749, of a NT$1,249 monthly health-insurance premium, with the rest footed by local taxpayers.

Mainland students say the change is long overdue. "The current system discriminates against Chinese students and it is about time to make some changes to ensure our access to medical care is the same as everyone else," said Liu Suking (19), a journalism student from Xiamen studying in Taipei.

Ranking officials, including the heads of the Mainland Affairs Council and the insurance bureau, have said the addition of the Chinese students, who number roughly 1,800, will not be financial burden to the system. The proposal, government spokesman Huang Min-kung told local media, is based on the "principle of fairness and human rights" because currently all foreign students and overseas compatriot students are already covered under the NHI. […]

Since opening the doors of its universities to mainland students for the first time last year, Taiwan is still struggling to entice Chinese students to study on the island. For the second year in a row, it has filled less than half of the 2,000 university spots reserved annually for degree-seeking mainland students, according to Taiwan's Ministry of Education. The ministry says 987 mainland students enrolled this autumn, a slight bump up from 928 last year. […]

(http://blogs.wsj.com/chinarealtime/2012/10/16/temperatures-rise-over-mainland-access-to-taiwan-health-care/)

6. New Shanghai Technology University Established

(Swissnex, 05-11-2012)

As early as in 2008, the Chinese Academy of Sciences (CAS) and Shanghai Municipal Government signed a Collaboration Agreement to strengthen the CAS support to local development. These efforts include establishing a research university, which materializes into the Shanghai Tech University that is in the making.

The campus, once finished, will be located in Zhangjiang High-tech Industrial Development Zone, covering about one square kilometers. The University will be science and engineering oriented, consisting four schools-School of Physical Science and Technology, School of Information Science and Technology, School of Life Science and Technology and School of Entrepreneurship and Management. In the short-term, it plans to enroll about 2,000 undergraduate students and 4,000 postgraduate students. The first enrollment has already finished this year.

The new Shanghai Tech University will leverage the research strength of Chinese Academy of Sciences and the support of Shanghai Municipality to create a unique mechanism in education, research and entrepreneurship.

Events (November 15th – December 15th 2012)

S&T, Education and Health-related Events in China

China International Industry Fair
Date: November 6th to 10th
Place: Shanghai
Contact: http://www.ciif-expo.com/

Airshow China
Date: November 13th to 18th
Place: Zhuhai
Contact: http://www.airshow.com.cn/

China Hi-Tech Fair
Date: November 16th to 21st
Place: Shenzhen
Contact: http://www.chtf.com/

The 9th China (Beijing) International Coal & Energy Expo, 2012
Date: November 28th to 30th
Place: Beijing
Contact: http://www.cicne.com.cn/

Security China 2012
Date: December 3rd to 6th
Place: Beijing
Contact: http://www.securitychina.com.cn/index.shtml

China (Taizhou) International Medical Expo 2012
Date: December 7th to 9th
Place: Taizhou
Contact: http://www.cim-expo.com/

Shenzhen International Biotech Innovation Forum and Exhibition
Date: December 13th to 15th
Place: Shenzhen
Contact: http://www.sibife.com/

China 10th International Digital Content Expo
Date: December 14th to 17th
Place: Beijing
Contact: http://www.digichina.org.cn

Swiss S&T, Education and Health Events in China

Swiss Student Welcome Reception
Date: November 25th
Place: Beijing
Contact: Embassy of Switzerland in China

Swiss University Alumni Event
Date: December 15th
Place: Beijing
Contact: Embassy of Switzerland in China

Swiss Technology for Water Management
Date: November 23rd, 2012
Place: Guangzhou
Contact: Swisscham

Urban Body Project at the 3rd Art and Science International Exhibition and Symposium
Date: November 1st to 30th
Place: Beijing
Contact: Swissnex China