Science, Technology and Education News from China

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Introduction

This month's newsletter starts with an analysis on the decreasing number of high school graduates taking the "College Entrance Examination", the reasons behind and the way forward. In science and technology, audit report found China's Key Science and Technology Project plagued by fraud and accounting misconducts. China establishes the first national gene bank in Shenzhen. The Ministry of Railway decided to lower the speed of the High Speed Train. In Health, China plans to equip local clinics with qualified general practitioners by 2012. Also, the Ministry of Health denied that it had lowered dairy standards.

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

Policies

Decreasing Number of Gaokao Participants: How Much Difference Does It Make?

China's annual National College Entrance Examination ("gaokao") 2011 took place in June. 9.3 million students registered for the examination, 300,000 less than last year[2]. It also marked the third consecutive year for such decline. Data from the Ministry of Education[3] showed that participation shrink happened not only in developed cities like Beijing (-5%) and Shanghai (-8%), but also in densely populated provinces such as Henan (-7%) and Hunan (-9%). Even several provinces in Western China, such as Xinjiang (-10%), are undergoing the same change.

Once the only way to get access to higher education, it seems that gaokao is becoming less and less attractive for students. The phenomenon can be explained by the following reasons:

-**Demographic change**: The Ministry of Education argued that demographic change is the main reason. According to *2011 Higher Education Admission Report 2010*[4], China's "baby boom" peaked in 1991, and then went on a steady drop till 2000. Consequently, the number of students in all levels of education has been decreasing. Demographic curve showed that the number of eligible gaokao takers (usually 18-year-olds) peaked in 2008, and then followed by consecutive drop, which is expected to go on until 2018.

-**Less "gaokao retakers":** Students retaking gaokao in the hope of getting in to their ideal choice of university used to be a visible part of the gaokao participants. In recent years, higher admission capacity of Chinese universities as a result of their expansion has offered broader access to higher education for students, making it less necessary to retake the exam. It is particularly the case for provinces which previously received less admission quota from universities, such as the densely populated ones like Henan, Shandong and in less developed ones in the West. Statistics showed that the number of gaokao retakers in 2011 dropped by 280,000[5].

-**More "gaokao drop-outs"**: In light of the much criticized quality of higher education, the increasingly competitive job market and the massive jobless university graduates, domestic university is no longer considered the only choice for high school graduates. Other choices, such as study abroad and vocational education, are increasingly gaining grounds, especially among students in four segments: best and bottom of academic performance, the rich and the poor. For those who could afford and could manage, study abroad has become a favorable choice. According to the Ministry of Education statistics, around 1 million high school graduates didn't register for gaokao in 2010, and 21% of them eventually went abroad[6]. At the other end, students from less privileged families or with less impressive academic records now see university education less "cost-effective" and would rather go for vocational education or apprenticeship which seems to be more useful in job hunting.

Less participants in gaokao is also expected to change the current higher education landscape by **intensifying competition for students among universities**, especially the non "211" or "985" ones. Local governments will be under tremendous pressure to attract enough number of applicants for the local universities within their jurisdiction.[7] For example, in 2010, Hunan provincial government rejected some non-local universities' admission offers to keep high school graduates in local universities. It is likely that other provinces will initiate similar policy.

But despite the decrease, the overall number of gaokao participants is still a significant 9 million, indicating that university is still, and **will continue to be a mainstream path** for high school graduates. Multiple choices are more in the hands of the top, bottom, rich and poor.

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[2] *No official data is made available on the number of high school graduates in 2011.Therefore there is no way to know the actual number of gaokao dropouts.*
[3] *Number of Gaokao Registration Released*, Sina.com.cn, http://edu.sina.com.cn/gaokao/2011-05-24/2040297073.shtml
[4] *2011 Higher Education Admission Report*, China Education Online, http://gaokao.eol.cn/html/g/report/
[5] *Number of Gaokao Participants to Reduce Again This Year*, people's daily, http://edu.people.com.cn/GB/79457/13715328.html
[6] *Why they gave up gaokao?* 163.com, http:// http://news.163.com/11/0629/08/77N13KVC00014AED.html
[7] *Besides "211" and "985" universities which are directly affiliated to relevant Ministry, most universities in China are the responsibilities of their respective hosting cities.*

News

1. Audit Found Science Funding Misused

(ScienceNet, 27-06-2011)

National Audit Office of China on June 27 released its audit report on the Ministry of Science and Technology's use of 2010 budget and pointed out that **misuse of project funding** and **fraud** "commonly existed" in National Key Science and Technology Projects.

According to the Audit Office, problems existed in mainly four categories: **using old patents/journals as new accomplishments, fake matching funding from the host institutions, delayed final evaluation and misuse of project funding**.

The report showed that out of the 133 projects audited, a total of 2,221 patents were reported as new accomplishments. But 445 patents, or 20.04% of them were granted before the projects started. Among the 8,011 journals submitted as newly published research findings, 3,284, or 40.99% were either old papers, or authored by researchers who were not relevant with the research team.

The Key National Science and Technology Project required matching funding from the researchers' hosting institutions. The Audit Office found out that until the end of 2010, only 24.46% of the matching funding was actually made available.

Long delay of final evaluation was also a problem. Among the 141 projects that should be evaluated by September 2010 by the Ministry, only 34 of them finally finished the evaluation. 30 projects were delayed for 2 years, 63 projects were delayed for 1 year.

The Audit Office also looked into the accountings of 99 projects in 2010 and found out that at least CNY 102 million had been misused. Unauthorized overspending, unauthorized change of budget, misconducts in accounting and "end-of-project spending spree" are the most commonly-seen problems.

2. Power Plant Will Double Output of Three Gorges Dam

(China Daily, 21-06-2011)

The China Three Gorges Corporation says four planned hydroelectric power stations being built on the Jinsha River will be capable of producing twice as much power as the Three Gorges Dam, which is currently the world's largest-capacity hydroelectric power plant.

The company says the four new plants on the river, which is part of the boundary between Yunnan and Sichuan provinces, will be able to pump out 43 million kilowatts. The four stations together will generate about 190 billion kilowatts of electricity a year after they come online during the next few years, according to a report released by the China Three Gorges Corporation on Sunday.

The corporation received approval to build the massive plants in 2002 on the river that is one of the major headwaters feeding the Yangtze River. The power stations will be named Xiluodu, Xiangjiaba, Wudongde and Baihetan. Construction of the Xiluodu hydropower station started in 2005 and is scheduled to be completed in 2013 […].

The report also explained the rationale behind the construction of the Three Gorges Dam itself. Chen Fei, general manager of the China Three Gorges Corporation, said its main task is to help with drought relief and flood control and that the production of electricity is one of its other roles […]. The report also explained that the Three Gorges project is capable of protecting the Jianghan Plain from floods in the middle reaches of the Yangtze River. The dam is capable of dealing with a peak flow rate up to 113,000 cubic meters per second.

It was the first time the China Three Gorges Corporation had released such a "responsibility report" […]. After a severe drought hit the middle and lower reaches of the Yangtze River and persisted until May and when it was followed by floods this month, some critics questioned whether the Three Gorges Dam had caused or aggravated the situation and asked whether it was capable of controlling floods […].

(http://www.chinadaily.com.cn/china/2011-06/21/content_12739882.htm)

3. China Establishes National Gene Bank in Shenzhen

(China.org, 18-06-2011)

China established its first national gene bank on Friday in south China's city of Shenzhen with the support of the Beijing Genomics Institute (BGI), official said.

With the establishment of the National Gene Bank in Shenzhen, China will be able to better protect, research and utilize its precious genetic resources, boosting the genetics industry and safeguarding the country's genetic information, said Qi Chengyuan, head of the high-tech industry department of the National Development and Reform Committee (NDRC).

The gene bank, which was approved by the NDRC in January, is based on data and facilities belonging to the BGI, but will grow with the help of extensive cooperation with other biological organizations both home and abroad, Qi said.

The national gene bank "aims to lead the development of international bioindustry as one of the world's largest gene banks," said Yang Huanming, the BGI's president.

The BGI, the world's largest genome-mapping institute, has more than 1,000 biological analysis devices working with top-of-the-line genome-sequencing machines.

Analysts say the BGI differs from conventional labs, as it can handle data in vast quantities and industrialize its research. Some believe lower wages in China have also contributed to the BGI's competitiveness. […]

The BGI has published 18 research papers in *Science* Magazine and the *Nature* Journal since 2007. The facility has become an international center for genome research and industrialization, with advanced technology and top talent, said Ji Xiaoming, head of the international cooperation department of the Ministry of Science and Technology.

(http://www.china.org.cn/china/2011-06/18/content_22810147.htm)

4. China Vows to Improve Grassroot Clinics

(Xinhua, 22-06-2011)

China on June 22 vowed to equip all hospital in urban communities and rural townships with qualified general practitioners by 2012, in an effort to improve the country's medical care services at grassroots clinics.

At an executive meeting of the State Council presided over by Premier Wen Jiabao, it was decided that China will establish a system of general practitioners, according to an official statement issued after the meeting.

Known as "door-keepers" for health of residents in urban communities and rural townships, general practitioners are medical professionals who treat acute and chronic illnesses and provide preventive care and health education.

Among the country's major efforts to reform its medical care system, it will work to make general practitioners the backbone of the medical professionals team at grassroots medical services, the statement said.

Such a move will help greatly ease public complaints about difficulty of accessing quality and cheap medical services at local clinics, it added.

The statement noted that China faces a shortage of general practitioners and the country's efforts to cultivate and equip such talents in grassroots clinics is still at the initial stage.

In several years after 2012, the country aims to establish a standard mode for the cultivation of general practitioners and a medical service mode under which the patients can be treated first at local medical care services, according to the meeting.

China will work to ensure that for every 10,000 urban or rural residents, there will be two to three qualified general practitioners ready to take care of their health problems.

The qualifications are a five-year bachelor degree program in clinical medicine and then three years of specially prescribed education before becoming a general practitioner, the statement said.

(http://www.china.org.cn/china/2011-06/22/content_22839896.htm)

5. Ministry Denies Lower Dairy Standard

(China Daily 27-06-2011)

Chinese officials have denied adopting a looser national standard of milk quality and claim to be developing grading levels for raw milk to guide the production of differentiated products.

In response to recent reports that China's dairy industry has the world's lowest standards, the Ministry of Health said the new standard for the maximum limit of bacteria in raw milk is stricter than before.

According to a notice issued by the ministry, the original standards of bacteria counts consisted of four grades, from 500,000 per milliliter to 4 million per ml instead of the one standard of 500,000 per ml reported by media.

"The new milk quality standards implemented in March 2010 adjusted the standard to 2 million, which is more stringent than before, and has raised the threshold for raw milk," Meng Jin, a member of the working group of experts on dairy safety standards, said in the notice.

In response to the criticism that the minimum requirement for protein content had been lowered from 2.95 grams per 100 g of milk to 2.80 g, the notice attributed the change to the ministry's survey result that 90 percent of raw milk produced in North China in 2008 was below the standard of 2.95.

"The survey data comes from 2008, when the melamine-tainted baby formula scandal broke. The proportion of qualified raw milk should have increased a lot by now," Wang Dingmian, chairman of the Guangzhou Dairy Association, told China Daily.

According to the notice, compared with the 2.80 standard for protein content in raw milk, the indicator in pasteurized milk and sterilized milk must be no lower than 2.90.

Industry experts said the widely taken approach of manufacturing milk products of higher protein content with raw milk of lower protein content is done by artificial post-processing.

"The country set a protein content standard for raw milk which is in contradiction with the standard in end products. It shows the country permits the adding of material and is forcing dairy firms to cheat," Wang said. "And the added material cannot be milk protein derived from other raw milk. In most cases, it is protein powder."

Food safety experts said allowing the addition of material may pose dangers to milk security.

(http://www.china.org.cn/china/2011-06/27/content_22863384.htm)

6. China Concludes 1st International Assessment of National Science Fund

(*Xinhua News*, 16-06-2011)

Chinese State Councilor Liu Yandong met on June 15 with several experts who had concluded an assessment of projects of China's National Natural Science Foundation NSFC.

According to the Foundation, it is the first time for China to conduct an international assessment of its scientific funds, which are supported by fiscal expenditure. And the final assessment report will be released in the second half of this year.

"The assessment is of great directive significance for a healthy development of China's natural science funding, and exerts great value of reference for management in other scientific areas," Liu said.

The experts who worked on the assessment are Richard N Zare, professor of Stanford University, Han Qide, chairman of the national committee of the China Association for Science and Technology, and German scientist Ernst-Ludwig Winnacker.

The three scientists make up the core of the International Evaluation Committee on the Foundation's Funding and Management Performance, which was established last year for the assessment.

The Committee altogether grouped 13 renowned scientists from six countries and had reviewed the Foundation's performance in 25 years in the fields of funding and management.

The Foundation, set up in 1986, is committed to promoting and financing basic research and some applied research in China.

(http://news.xinhuanet.com/english2010/china/2011-06/15/c_13931989.htm)

7. High-Speed Trains in China to Run Slower, Ministry Says

(NY Times, 13-06-2011)

China's troubled Railway Ministry on Monday lowered the top operating speed for its flagship Beijing-to-Shanghai bullet train, which is set to open later this month, scaling down what was supposed to be a pinnacle of a transformed rail system that has become one of the country's proudest and most ambitious domestic initiatives.

The new line, once set to run at up to 236 miles per hour, will instead run trains at 186 and 155 miles per hour, the ministry announced.

That puts the line at the same speeds that the ministry had announced in February for eight other trunk lines on the network, which is still being built. Those trunk lines originally were set to run at a top speed of 217 miles per hour, slightly slower than the Beijing-to-Shanghai route.

The reduced speeds stem from sweeping changes the ministry has made since the rails minister, Liu Zhijun, was fired on corruption and mismanagement charges in February. Some critics had charged that Mr. Liu built a high-speed-rail empire that was both too costly for average riders and marred by shoddy, quick construction that, at a minimum, might require lower speeds.

Vice Minister Hu Yadong told reporters that the trains could run at the higher speed, but the reductions would have broad benefits, making it easier for more traditional, more affordable trains to operate and saving on maintenance and power.

Rail officials also said they had scrapped plans for luxury compartments and would offer cheaper classes of service. The new line will halve the 10-hour rail trip between the country's great metropolises, but even the lowest ticket price of about $63 nearly equals the net monthly income for rural residents. […] The plans, developed as China's economy took fire, include nearly 8,100 miles of high-speed rail lines and some 11,000 miles of traditional railroad lines, at a cost of $750 billion.

In the past few months, some foreign companies that sold China its high-speed technology said the trains were not designed to operate at 215 miles per hour. The ministry said that Chinese engineers had improved on the foreign technology and that the trains were safe at the higher speeds.

(http://www.nytimes.com/2011/06/14/world/asia/14china.html)

Events (July – August 2011)

July 2011

International Workshop on Computational Geodynamics
Date: July 1st
Place: Beijing
Contact: Graduate University of Chinese Academy of Sciences, CAS

2011 International Conference on Remote Sensing and Data (ICRSD 2011)
Date: July 2nd to 3rd
Place: Hong Kong
Contact: http://www.icrsd.org

The 7th China-Korea Symposium on Polymer Materials
Date: July 3rd
Place: Dalian
Contact: Changchun Institute of Applied Chemistry, CAS

IMR Materials Week 2011
Date: July 4th
Place: Shenyang
Contact: Institute of Metal Research, CAS

2nd Art Science Society Lectures 2011 Art & Culture
Date: July 21st
Place: Shanghai
Contact: Swissnex China

International Symposium on Laser Cut and Related Application
Date: July 15th
Place: Changchun
Contact: Changchun Institute of Optics, Fine Mechanics and Physics, CAS

The 18th East Asia Joint Symposium on Biomedical Research
Date: July 11th
Place: shanghai
Contact: Shanghai Institute for Biological Sciences, CAS

China Municipal Solid Waste Forum 2011
Date: July 21st to 22nd
Place: Shanghai
Contact: http://www.mswforum.com.cn

The 3rd International Business Intelligence Summer School
Date: July 22nd
Place: Beijing
Contact: Academy of Mathematics and Systems Sciences, CAS

The 3rd International Symposium on Signal Transduction and Cancer
Date: July 24th
Place: Shanghai
Contact: Shanghai Institute for Biological Sciences, CAS

International Symposium on Organometallic Chemistry Directed towards Organic Synthesis (OMCOS)
Date: July 24th
Place: Shanghai
Contact: Shanghai Institute of Organic Chemistry, CAS

Carbon 2011 Conference
Date: July 24th
Place: Shanghai
Contact: Institute of Coal Chemistry, CAS

The 1st Asia-Pacific International Symposium on Integrated Behaviroal Research
Date: July 25th
Place: Xi'an
Contact: Institute of Zoology, CAS

2011 International Workshop on Environmental Engineering and Technology
Date: July 29th to 31st
Place: Kunming
Contact: Kunming University of Science and Technology

August 2011

4th Art Science Society Lecture 2011
Date: tbc
Place: Shanghai
Contact: Swissnex China

The 11th RHESSI General Workshop and High Energyt Solar Physics Symposium
Date: August 4th
Place: Nanjing
Contact: Purple Mountain Observatory, CAS

The 3rd International Symposium on Insect Physiology, Biochemistry and Molecular Biology
Date: August 7th
Place: Shanghai
Contact: Shanghai Institute for Biological Sciences

The Second International Conference on Biotic Plant Interactions
Date: August 8th
Place: Kunming
Contact: Shanghai Institute for Biological Sciences, CAS

The 26th International Conference on Low Temperature Physics
Date: August 10th
Place: Beijing
Contact: Chinese Physical Society, CAST

International Cosmic Ray Conference 2011
Date: August 11th
Place: Beijing
Contact: Institute of High Energy Physics, CAS

Swiss Day
Date: August 14th
Place: Shenzhen
Contact: General Consulate of Switzerland in Guangzhou, swissnex China & Swiss Tourism

International Academic Seminar on the Management of Arid Environment and Water Resources
Date: August 15th
Place: Urumqi
Contact: Xinjiang Institute of Ecology and Geography, CAS

10th International Conference on Electronic Measurement and Instruments, ICEMI 2011
Date: August 16th
Place: Chengdu
Contact: Chinese Society of Electronics, CAST

The 8th International Association for Landscape Ecology World Congress
Date: August 18th
Place: Beijing
Contact: Research Center for Eco-Environmental Sciences, CAS

Conference for Large Optical System Advanced Manufacturing Technologies
Date: August 19th
Place: Changchun
Contact: Changchun Institute of Optics, Fine Mechanics and Physics, CAS

The 13th International Symposium on Electroanalytical Chemistry
Date: August 19th
Place: Changchun
Contact: Changchun Institute of Applied Chemistry, CAS

The 5th International Symposium on Engineering Plastics
Date: August 21st
Place: Kunming
Contact: Institute of Chemistry, CAS

The 7th International Conference on Supercritical Fluids—Supergreen 2011
Date: August 27th
Place: Beijing
Contact: Institute of Chemistry, CAS

International Living with a Star
Date: August 28th to September 1st
Place: Beijing
Contact: Center for Space Science and Applied Research