Science, Technology, Education and Health News from China

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Introduction

The Story of the month covers the Chinese government’s decision to stop authorizing or funding science and technology projects directly. In science and technology, China made observation data from the Large Sky Area Multi-Object Fiber Spectroscopic Telescope (LAMOST) available to scientists worldwide as China aims to be a leader of innovation. In education, there is a detailed report of Chinese President Xi Jinping’s initiatives to launch the “One Belt and One Road” scholarship. The annual APAIE conference was held in Beijing in March and China’s higher education sector is expected to see similar dramatic growth. Reform of the national college entrance exam became one of the most heated topics in China. In health, public satisfaction with and confidence in the country’s food safety has dropped compared with 2014. The Ministry of Environmental Protection reveals PM2.5 sources.

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1 Please click on the blue texts to activate the hyperlinks to either email addresses or related websites.
The Chinese government has decided to shift its role in science research.

Over the past few decades, there are 40 government departments involved in the funding approval process for science projects, including the Ministry of Science and Technology in China. It reflects that the government plays a key role in deciding which science and technology program will get support, which will directly affect the direction of research and innovation and lead to inefficient works.

China’s Minister of Science and Technology Wan Gang indicated on March 11 that he would like to improve the support for the science and innovation programs through delegating powers to local governments and allowing marketing development plans to play a crucial role in the process of decision-making.

According to Wang, one of the key purposes of this reform is to take care of the relationship between the government and market. He also mentioned that the reduction on administrative interference with research can contribute to science and technology innovation.

Innovation has become more and more prominent in the national strategy position. The government believes that science and technology innovation should integrate with economic and social development.

From the perspective of science and technology input, the whole society's input to research and development has exceeded 2% of GDP. Therein, the part that enterprises have input accounts for more than 76%. In consequence, various problems the enterprises have encountered with during technology innovation, such as university-industry cooperation, transformation of scientific and technological achievements, how to realize business model innovation, how to get more financial support for scientific and technological innovation, and how to promote the communication between scientific research personnel and enterprises, should be the major concerns where service and management shall be strengthened. For science and technology itself, it should follow the law of scientific and technological innovation and give full play to the enthusiasm and creativity of various subjects such as enterprises, universities, research institutions, mass innovation and entrepreneurship, as well as small micro-enterprises in science and technology innovation activities.

Shi Yigong, the dean of School of Life Sciences at Tsinghua University and deputy to the National People’s Congress, believes that professors are too busy with socializing with relevant officials of the projects in order to get approval on financial support. Shi said that the new reform could change the funding evaluation system and let people focus on innovation.

As a member of Chinese People's Political Consultative Conference and deputy president of East China University of Science and Technology, Qian Feng has expressed his support for this reform as well. He is really happy to see that universities have influence on transferring intellectual property and research innovation in decision-making process. Qian also believes that it is necessary to reduce administrative interference to generate more research achievements.
**News**

1. **Data from China's Finest Telescope Released Worldwide**

   (CAS, 20-03-2015)

   On March 19, China made observation data from the Large Sky Area Multi-Object Fiber Spectroscopic Telescope (LAMOST) available to scientists worldwide.

   LAMOST, China's leading optical telescope project, was completed in 2008 to collect high quality spectra, key to astronomers reading celestial bodies' chemical composition, density, atmosphere and magnetism.

   The DR1 data set from the first year of operations contains more than 2.2 million spectra from stellars, galaxies, quasi-stellar objects (QSO) and unknown types.

   In accordance with international practice, the same data set was first released to Chinese astronomers and the project's international partners in August 2013, helping the discovery of many new QSOs, white dwarfs and other celestial bodies.

   The DR2 set is currently available to Chinese astronomers and international partners, containing 4.13 million spectra from the second year of observations.

   LAMOST is located at the Xinglong Observing Station -- about 170 km northeast of Beijing, and run by the National Astronomical Observations of the Chinese Academy of Sciences (NAOC).

   "LAMOST observations between 2012 and 2017 are expected to collect more than five million high-quality spectra in total. These spectra data will be the cornerstone for digitizing the universe and provide significant help for studying the structure, movements, formation and development of the universe," said Zhao Gang, a senior NAOC official.

   (http://english.cas.cn/newsroom/news/201503/t20150320_145515.shtml)

2. **Xi's initiatives spur plan for new scholarship**

   (China.org, 25-03-2015)

   China plans to set up a scholarship designed exclusively for students coming to study in the country from nations involved in Beijing's initiatives to build a Silk Road Economic Belt and 21st Century Maritime Silk Road.

   An official from the Ministry of Education confirmed the “One Belt and One Road” scholarship plan on March 24.

   "We are negotiating with the Ministry of Finance on establishing scholarship programs under the (One Belt and One Road) plan to provide more support to students from those countries," said Tian Lulu.

   Tian, an official in the Education Ministry's Department of International Cooperation and Exchanges, was speaking at an international forum on studying in China, held in Beijing.

   The forum, which was organized by the China Education Association for International Exchanges, discussed issues such as policies, problems and solutions in recruiting and managing international students.

   Tian said they are working on the design of the scholarship programs, but she declined to provide more details. She said the ministry had noticed that the major sources of international students in China are changing, and it will draw up new policies as a result.
"The number of students from some countries, such as South Korea, Japan and the United States, remains stable or has started to drop. But some neighboring countries, including India and Pakistan, are becoming emerging sources for international students in China," Tian said.

According to the Education Ministry, Pakistan, with 13,360 students coming to study last year, was the eighth-largest source of international students in China, compared with the 10th largest in 2013, when President Xi Jinping announced the "One Belt and One Road" plan.

The number of students coming to study in China from India rose from 11,781 in 2013 to 13,578 last year, making India the seventh-largest source of China's international students.

Tian said, "Against such a backdrop, we are considering providing more preferential policies to some border provinces and regions to help schools and other educational institutions recruit and accept more students from neighboring countries."

Chen Zhiwen, editor-in-chief of eol.cn, China's largest education portal, said, "Economic factors play a key role in attracting international students."

"With the implementation of the One Belt and One Road plan, a further increase in the number of students from countries involved in the plan can be expected."

(China.org.cn, 26-03-2015)

3. Confidence in food safety dropping

Public satisfaction with and confidence in the country's food safety has dropped compared with last year, according to a research center attached to the China Food and Drug Administration.

Food safety experts said that despite the drop in consumer confidence, overall food safety in China improved in recent years because of stricter law enforcement and increasing company awareness of the issue.

According to the report, about 48 percent of those surveyed said they were unhappy about China's food safety, much higher than the 29.7 percent in 2012.

Up to 74.7 percent of respondents said they didn't have any or enough confidence in food safety improving in the future.

A number of shocking malpractices, including injecting the drug clenbuterol into pork, recycling cooking oil from leftovers in restaurant kitchens, selling pork from sick pigs, making medicine capsules with toxic gelatin and passing rat and fox meat off as mutton and beef have made headlines in China in recent years.

The biggest incident last year came in July when Shanghai Husi Food, owned by the Chinese arm of US food giant OSI Group, was found to have supplied expired meat to fast-food restaurants including McDonald's and Yum Brands in many areas of China.

More than 40 experts and scholars from about 10 institutes and colleges contributed to the report. A total of 4,258 food samples were collected from more than 10 provinces and 2,139 urban consumers were surveyed.

Zhang Yongjian, director of the Research Center for Development and Regulation of the Food and Drug Industry, said the discovery of illegal activities is decreasing.

"The country's overall food safety is definitely improving," he said.
The report also said consumers view supermarkets as the most reliable venue to buy food and they have the least confidence in small shops and mobile food vendors.

The report said 164 batches of substandard food were banned from being imported into the country in 2013, as safety of imported food remained a grave problem.

Of the six kinds of food and beverage sampled, wheat flour and formula top the list in terms of meeting standards, while bottled water, instant drinks, fruit and vegetable juice, and sodas were listed at the bottom.

The problem of pesticide residue in vegetables is improving, the report said. A test in 2013 found that 96.6 percent of vegetables met the standards for pesticide residue.

(http://www.china.org.cn/china/2015-03/26/content_35157984.htm)

4. **China aims to be leader in innovation**

(China daily, 28-03-2015)

Chinese policymakers are laying the foundation for a transformation of the country by 2020 from its primary role as a manufacturer to that of a leading innovator.

Over the past three decades, China has emerged as a major manufacturing base for the world, but the country's competitiveness in advanced manufacturing remains relatively weak, partly because of domestic companies' low investment in research and development.

Only 14 percent of Chinese enterprises with primary operating revenue of more than 20 million yuan ($3.2 million) annually have any R&D activity. Spending on R&D accounts for only about 0.8 percent of their total revenue, while their counterparts in developed countries, such as the United States, spend around 3 percent of sales revenue on R&D.

To promote innovation by Chinese companies, the country's top economic planning body jointly drafted a document with more than 20 government bodies. The document was released on March 20.

China will level the playing field, continue to enhance its opening-up and actively make use of global resources and markets, officials said.

Qi Chengyuan, director-general of the high-tech industry department of the NDRC, said: "China welcomes the building of R&D centers in China by prestigious international scientific institutions and encourages foreign institutions to participate in China's technical programs, including both basic and applied research," Qi said.

In addition, the country will establish a market-oriented mechanism for innovation, increase the supportive role of policies and increase the voice of businesses in State innovation decisions.

(http://www.chinadaily.com.cn/china/2015-03/28/content_19935379.htm)

5. **APAIE: China’s HE growth expected to follow economic boom**

(Thepienews, 30-03-2015)

With China's position as the world's largest economy solidified, the country's higher education sector is expected to see similar dramatic growth, expanding even further globally, delegates at the Asia-Pacific Association for International Education’s (APAIE) 10th annual conference and exhibition heard.
The foundations for the event's discussions in Beijing last week were laid by opening speaker Justin Yifu Lin, former senior vice president and chief economist at the World Bank, who took delegates through the history of China's economy, and underlined that it has seen an average annual growth rate of 9.7% for 36 years: the highest and longest in human history.

“The world is so keen to engage with China and to have China’s most emblematic best university, Peking, deliver this conference, it was bound to attract people from all across the world,” said Susan Elliott, the vice president of APAIE, speaking to The PIE News.

“I’m delighted though. It’s fantastic that there are people from Europe, Africa, North America and South America as well as those within the region.”

In 2013, China was the third leading host destination for international students, boasting an 8% share of the market and falling only behind the UK and the US, who represented 11% and 20% of the number of inbound international students, respectively.

It is also the top sender for international students in many countries including the UK, US, Australia, Canada and Japan.

“I was at Tsinghua University on March 29 and they were talking about their need to engage even more globally and yet they’re such a globally engaged university,” said Elliott. “I think it’s a progression, but for some countries, a step-change in their internationalization and their desire to engage with much more international classrooms.”

Still, there is still work to be done as a major concern among Chinese players it that its culture is not as influential as its economy. Programmes are less competitive than European or US counterparts and despite high international enrolments, they still represent less than 1% of the total HE population.

A case study also showed that English taught programmes are less successful in China than other non-anglophone destinations.

Next year's conference will be held in Australia, a country whose own outbound scheme– the New Colombo Plan– has made a major impact on China as a study destination, according to Elliot. The 2016 conference will be hosted by nine Victoria universities in Melbourne. “I think what I’d like to talk about in Melbourne is new models for mobility,” she told The PIE News.

“I think research collaboration, particularly through PhD students is another area we could pick up and take forward next year, talking about joint PhDs and the benefits and the challenges that need to be overcome. And I think also Asia Pacific and the rest of the world is a theme that we’d like to pick up on as well.”


6. Putting examination reform to the test

Reform of the national college entrance exam became one of the most heated topics covered during the annual session of the country's top legislature in March.

Deputies of the National People's Congress gathered in Beijing to discuss the progress of the reform. They also expressed their hopes and concerns for the measures that would affect young Chinese people across the country.

The national college entrance exam, also called the gaokao, was launched in 1952 and resumed in 1977 after being suspended during the "cultural revolution" (1966-76). It has been a crucial, life-changing event for most Chinese high school students for decades.
The standardized exam aims to provide fair access to universities to all high school graduates, rich or poor. Universities also use it to help them select potential talent.

But there has also been criticism of the system, including concerns about corruption, regional discrimination and the huge psychological pressure that students suffer from the exams. These have helped fuel calls for more reform.

The education sector rolled out measures for change following a comprehensive plan for reform launched by the State Council in September.

"In 2015, universities will allocate another 20,000 seats for provinces in the middle and western areas to narrow the gap between provinces and regions with the lowest college enrollment rate and the national average," said Education Minister Yuan Guiren, adding that the reform will help ensure nationwide equality in higher education. The ministry is working on policies to ensure equality and increase flexibility, he said.

Li Yuanyuan, president of Jilin University, saw the reform in a positive and optimistic way. He believed that fairness is the essence of gaokao.

"Fairness is the bottom line of the reform, which will fail if the bottom line is ignored," he said, adding that universities are eager for the change because it provides more autonomy for them to choose suitable talent.

Under the current system, universities have less power to recruit students. They rely on one examination, unlike many universities in the West that have complete autonomy in choosing students.

Pilot programs were launched last year in Zhejiang province and Shanghai. Comprehensive reform will begin in 2017. The reform should ideally be carried out by 2020.

But Ge Jianxiong, a history professor at Fudan University in Shanghai, firmly opposes the reform plan and "completely disagrees "with it.

"Our compulsory education is not about sending all students to universities. Instead, it is essential to guide the distribution of students, training 60 percent of them to be ordinary members of the labor force," he said, adding that without the appropriate distribution, students, parents and society will still hold the old view of making gaokao as the only way to success.

(http://www.chinadaily.com.cn/china/2015-03/31/content_19958314.htm)

7. MEP reveals PM2.5 sources

(Globaltimes, 02-04-2015)

Research into the source of PM2.5 pollution across nine major Chinese cities is complete, a senior environment official announced April 1st, with analysts describing it as a major step toward combating the smog which has plagued large areas of the country. China’s environmental protection authorities on April 1st blamed vehicle emissions, industrial production, coal burning and dust for air pollution, with vehicle emissions the primary source in Beijing. Environmental experts said that while they welcome the analysis, they also expect more detailed and transparent data.

These four sources are responsible for 85 to 90 percent of airborne pollution in Chinese cities, Wu Xiaoping, vice minister of the Ministry of Environmental Protection (MEP) was quoted as saying on April 1st.

Vehicle emissions are the primary source in large cities including Beijing and the southern cities of Guangzhou and Shenzhen, according to first stage of the MEP study, which was conducted in nine cities concentrated in the Beijing-Hebei-Tianjin region, the Yangtze River Delta and the Pearl River Delta. The
nationwide air pollution source analysis program started in 2014, and the MEP plans to expand their research to 26 other cities.

Shanghai’s main air pollution source is “mobile pollutants.” Although the authorities did not specify what the pollutants are, Zhang Yuanxun, a professor of resources and environment at the Chinese Academy of Sciences (CAS), believes they mainly refer to vehicle emissions. The number of motor vehicles in Beijing has surpassed 5.3 million, the largest number in China, while Shenzhen and Guangzhou were home to some 2.7 million and 2.5 million vehicles, respectively.

The MEP’s report had intensified fears in Beijing that the city may introduce an odd-even number plate policy, as was in place during the 2008 Olympic Games. Under current rules, one-fifth of vehicles are banned from the roads during weekdays.

"Nevertheless, we cannot only focus on the number of cars. The fuel quality, traffic management and road planning also assume great importance," Wang Gengchen, a research fellow with the Institute of Atmospheric Physics at CAS, told the Global Times.

Ma warned that the MEP’s findings should not mislead authorities into overlooking other pollutants, calling for more detailed data. "The major [pollution] sources should be categorized into local and outside pollutants, which also constitute a great proportion of air pollution," Ma said.

Although pollutants blown into Beijing contributed 28 to 36 percent to the density of PM2.5 in the air, the proportion would increase to some 50 percent due to extreme weather conditions, the Beijing Evening News reported on January 25.

Coal is the major source of air pollution in Shijiazhuang, a heavily polluted city in North China's Hebei Province, about 300 kilometers away from Beijing. The heavy industry city should strengthen the supervision of concrete and steel mills to use clean coal before burning and purify emissions by removing dust, sulfur and nitrogen, Zhang noted.

However, authorities have made much headway with environmental monitoring in 2014. Central and local governments invested 436 million yuan ($69.7 million) to establish 522 national-level monitoring stations in 177 cities, forming the largest monitoring network among developing countries, according to the MEP.

Despite the progress, the MEP’s PM2.5 results are not authoritative enough as the government, research institutes and companies have not reached a consensus on tested pollutants and examination methods, Wang Gengchen told the Global Times.

There is a chance that local governments and businesses have altered data to meet the air standards that the central government imposed, he said.

Zhang demanded the disclosure of all the measurements and corresponding data, as well as constant real-time environmental monitoring data.

(http://www.globaltimes.cn/content/915067.shtml)
(Collaborating Opportunities)

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