Science, Technology and Education News from China

Number 89 – November 2011

Please note that the previous newsletters can be downloaded from the website of the Embassy of Switzerland in China: www.eda.admin.ch/beijing[1]. *To subscribe/unsubscribe or send us your comments, please send an email with the corresponding subject to* chenchen.liu@eda.admin.ch.

Introduction

This month's newsletter starts with an overview of the 3 model science cooperation projects mentioned by the Ministry of Science and Technology in its 12th Five Year Plan on S&T Cooperation. November also sees the successful return of China's Shenzhou 8 to earth after docking with China's space station Tiangong-1. Also in S&T, China issues a white paper on climate change. The Chinese State Council decided to spend RMB 5.5 billion to clean up the heavily polluted underground water. In education, 2011 China Education Expo attracts a total of 66,000 students interested in studying abroad. China's education ministry launched a controversial policy of closing down college majors that don't have good employment prospect. The Chinese ministries decided to launch 12 projects to nurture and attract top talents.

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Contact

Markus Reubi
Science & Technology Counsellor
Embassy of Switzerland in the People's Republic of China
Tel: +86 10 8532 8849
Email: Markus.Reubi@eda.admin.ch
www.eda.admin.ch/beijing

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

Policies

Ministry of Science and Technology Promotes 3 Model Cooperation Projects

The 12th Five Year Plan for Science and Technology Cooperation released by the Chinese Ministry of Science and Technology, which was covered in the policy section in October's newsletter, underlined 3 model cooperation projects and called for other projects to "draw experience from these 3 success cases." The 3 projects are: **US-China Clean Energy Research Center CERC**, **China-Russia Science and Technology Cooperation Alliance**, and **China-Italy Design and Innovation Center**.

The US-China Clean Energy Research Center is **a joint venture** from both governments. The agreements were signed by President Barack OBAMA and President HU Jintao in 2009. It is by far the **biggest China-US science cooperation project**, with the **highest level of political engagement**.

Joint research work is conducted by a **consortium** consisting of university, research institutes and industry from both China and the United States. Ear-marked funding is provided by both governments. So far a commitment of **USD 150 million funding for five years** has been made. U.S. funding will be used to support the research work of the U.S. side, and the Chinese funding for Chinese side.

The China-Russian (referred to CIS in a broader sense) cooperation is characterized by **existing close ties on academic and industry level, joint facilities, local government initiative, and strong focus on applied sciences.** China-Russian science and technology parks, usually a joint venture between Chinese and Russian local governments, can be found in many cities in China.

To bring together existing players, Chinese Ministry of Science and Technology established an **"Alliance of China-Russia Science and Technology Cooperation Parks"** in 2009. The members of the alliance include China-Russia science parks in the localities and a few technology transfer institutes. The goal of the alliance is to better coordinate cooperation with CIS through building up an information platform for all members. Cooperation requests, ongoing projects, funding opportunity, profiles of research institutes, universities and technology start-ups in CIS are released on the website and updated regularly. Research achievements are also announced on the platform to provide further cooperation opportunities on commercialization.

The **China-Italy Design and Innovation Center** is jointly established between the Chinese Ministry of Science and Technology and the Italian Ministry of Public Administration and Innovation. The headquarter of the center is in Shanghai, with branch institutes in Shanghai, Changsha and Shenzhen, focusing on industry design, fashion design, urban design and heritage preservation. The branch institutions are accommodated in local universities or design industry parks. The center is platform for industry cooperation, education cooperation, research cooperation, an incubator for design start-ups. The center is also mandated to become the "meeting place" for China and Italian designers, as its infrastructure offers sufficient space for joint events. In terms of contribution, the Chinese side provided the infrastructure and the host institutions. In the first phase, MoST invested CNY 10 million to the center's headquarter in Shanghai and another CNY 10 million to the branch office in Hunan. The Italian side committed that it would bring Italian design companies into the Chinese facilities, and would facilitate academic exchange with Chinese institutions, which include teachers' training, faculty exchange, scholarships and joint degree programs.

The 3 model projects, each with different levels of government engagement and funding commitment, correspond to the 12th Five Year Plan on Science and Technology Cooperation, where China emphasized on engaging in more in-depth inter-governmental cooperation, in a better coordinated approach, and with country-specific cooperation strategies.

News

1. China's Unmanned Shenzhou 8 Capsule Returns to Earth

(BBC, 17-11-2011)

The Shenzhou 8 capsule landed in the Gobi desert late on November 17 (Beijing time), the final moments of its descent having being slowed by parachute.

While in orbit, the unmanned Shenzhou mission had rendezvoused with China's mini spacelab, Tiangong-1. The success of the venture paves the way for astronauts to visit the lab next year.

Officials have indicated their desire to launch one, or perhaps two, manned missions in 2012. They have also said that 2012 might even see the country's first female astronaut.

Ultimately, China hopes the technological progress it is making in orbit will lead to the development of a fully fledged space station at the end of the decade.

Shenzhou 8 spent just under 17 days in orbit in total, the longest Shenzhou mission to date.

Its goal had been to chase down and join with Tiangong-1, to demonstrate the technologies that will be essential if larger structures are to be assembled in space.

Although there were no astronauts on the flight, Shenzhou 8 was carrying biological experiments featuring fish, plants, worms, bacteria and even human cancer cells.

These studies, designed jointly by Chinese and German scientists, were retrieved from the capsule after its return to the grasslands of Siziwang Banner in the north of China at about 19:30 CST (11:30 GMT).

Beijing sees the Tiangong and Shenzhou dockings as the next phase in its step-by-step approach to acquiring the skills of human spaceflight operations.

It is a learning curve China hopes will culminate in the construction of a space station. This could start taking shape before 2020.

At about 60 tonnes in mass, this future station would be considerably smaller than the 400-tonne international platform operated by the US, Russia, Europe, Canada and Japan, but its mere presence in the sky would nonetheless represent a remarkable achievement.

Concept drawings describe a core module weighing some 20-22 tonnes, flanked by two slightly smaller laboratory vessels.

Officials say it would be supplied by freighters in exactly the same way that robotic cargo ships keep the International Space Station (ISS) today stocked with fuel, food, water, air, and spare parts.

(http://www.bbc.co.uk/news/science-environment-15776662)

2. China to Cancel College Majors that Don't Pay

(Wall Street Journal, 23-11-2011)

Much like the U.S., China is aiming to address a problematic demographic that has recently emerged: a generation of jobless graduates. China's solution to that problem, however, has some in the country scratching their heads.

China's Ministry of Education announced plans to phase out majors producing unemployable graduates, according to state-run media Xinhua. The government will soon start evaluating college majors by their employment rates, downsizing or cutting those studies in which less than 60% of graduates fail for two consecutive years to find work.

The move is meant to solve a problem that has surfaced as the number of China's university educated have jumped to 8,930 people per every 100,000 in 2010, up nearly 150% from 2000, according to China's 2010 Census. The surge of college grads, while an accomplishment for the country, has contributed to an

overflow of workers whose skill-sets don't match with the needs of the export-led, manufacturing-based economy.

Yet the government's decision to curb majors is facing resistance. Many university professors in China are unhappy with the Ministry of Education's move, as it will likely shrink the talent pool needed for various subjects, such as biology, that are critical to the country's aim of becoming a leader in science and technology but do not currently have a strong market demand, a report in the state-run China Daily report said.

An op-ed in the Beijing News criticizes the approach for a different reason, saying that it will only spur false reporting of employment rates from schools that are looking for greater autonomy to produce more diversified, higher qualified students.

Official data already shows that the country's educated jobless, appear to be decreasing. In 2010, 72% of recent graduates found work, up from 68% in 2009, according to the Ministry of Education.

None of the reports specified which majors would be cut under the new rules, but there are signs that some universities have already started taking steps to decrease the size of programs that don't result in paid positions. Enrollment in a Russian program at China's Shenyang Normal University was cut to 25 students this year from 50 in previous years, according to a report in the China Daily. […]

(http://blogs.wsj.com/chinarealtime/2011/11/23/china-to-cancel-college-majors-that-dont-pay/)

3. China Education Expo 2011 Attracts 66,000 Visitors

(CIEET, 19-11-2011)

Report has shown that the China Education Expo 2011, China's the biggest international education fair, has attracted more than 66,000 visitors after touring 7 cities in China: Beijing, Qingdao, Xi'an, Shanghai, Wuhan, Chengdu and Guangzhou.

Universities from 37 countries and regions sent official representations to the Education Expo. On top of the university representations, 20 national pavilions were also present to promote their countries as study destination. Both numbers marked a record high in the history of China Education Expo, indicating the increasing importance of China as an education market.

A survey of visitors showed that more and more students who visited the education fair had a clear agenda and goal on studying abroad. 67% of the survey participants confirmed that they plan to study abroad within 2 years. 69% of the survey participants are currently undergraduate students from universities. 67% of the participants would like to pursue graduate studies abroad, and 24% would apply for university studies.

When asking about the planned study destination, 52% of the participants in Beijing and 55% of the participants in Shanghai chose the U.S.A. The preference ranking was followed by U.K. and Germany (around 26%) and Canada (around 20%). 5% of the participants in Beijing and Shanghai chose Switzerland as their study destination.

In choosing university, ranking is the most important factor as indicated in the survey. 55% of the participants would look at the university ranking, 47% would consider major, 38% would look at career prospect after graduation, and only 29% would consider cost.

(http://www.cieet.com/en/zlbg.asp)

4. China White Paper on Climate Change Issued

(China News, 22-11-2011)

China's measures to control greenhouse gases specified in the national 11th Five-Year Plan (2006-2010) have achieved significant progress through adjusting the industrial and energy structure, improving energy efficiency and reducing carbon emissions, indicates the *White Paper on China's Policies and Actions for Addressing Climate Change* released by the State Council Information Office on November 22.

In terms of industrial efforts, China emphasized upgrading energy companies and encouraging service and innovation industries to balance economic growth with environmental protection. In 2010, the output value of China's hi-tech manufacturing industry amounted to RMB 7.6 trillion (about USD 1.19 trillion), second in the world.

The white paper also touched upon gains in energy conservation construction programs, promotion of environmentally-friendly technology and products, as well as the development of low-carbon energy sources such as natural gas, hydroelectricity and nuclear power.

On the whole, the five-year goal for energy conservation was reached. The 2010 energy consumption per GDP unit decreased by 19.1% compared to five years ago, equal to a drop in carbon volume of more than 1.46 billion tons. Chinese energy consumption went up during the term of the plan by 6.6 percent. The tension between energy demand and supply was also eased by the measures.

(http://www.most.gov.cn/eng/newsletters/2011/201109/t20110930_90107.htm)

5. China to Spend Billions Cleaning Up Groundwater

(*Science,* 11-11-2011)

On 28 October, the State Council unveiled a $5.5 billion initiative over 10 years to prevent and treat groundwater contamination. The plan will bolster monitoring and push development of groundwater cleanup technologies.

The project is long overdue, hydrologists say. Water is scarce in China, which ekes by with only one-quarter of the global average for water per capita. Roughly 70% of Chinese get their drinking water from underground—and the economic boom of the past few decades has tainted much of that supply, says Lin Xueyu, a hydrologist at Jilin University in Changchun. Disasters like the petrochemical plant explosions in 2005 that spilled 100 tons of benzene and other chemicals into the Songhua River near the Russian border have exacerbated China's woes. “The situation is dire,” Lin says.

Fully 90% of China's shallow groundwater is polluted, according to the Ministry of Land and Resources, and an alarming 37% is so foul that it cannot be treated for use as drinking water. Common pollutants include heavy metals, organic solvents, petrochemicals, pesticides, and nitrates. The toll is significant: Every year, an estimated 190 million Chinese fall ill and 60,000 die because of water pollution. According to the World Bank, such illnesses cost the government $23 billion a year, or 1% of China's gross domestic product. And that doesn't factor in the impact on China's ecosystems and food supply.

The State Council plan will fund a comprehensive national groundwater pollution survey starting this winter. Densely populated regions, areas with headwaters and spring waters, and contamination sources like industrial waste sites, landfills, and mines will receive special scrutiny. “The most pressing task at the moment is to find out how bad the situation is,” says Shi Xiaojuan, director of the drinking water division at the Ministry of Environmental Protection in Beijing. Once the results are in, the government will determine where to focus cleanup efforts. Broad goals include installing a national groundwater monitoring system, bringing pollution sources under control, and restoring the quality of drinking-water aquifers by 2020. The plan is “an important first step,” says Zheng Chunmiao, a hydrologist at Peking University in Beijing. He worries though that “some important pieces of the puzzle are missing.” For instance, he says, the plan lacks provisions for a legal or regulatory framework. Because “China does not have laws on groundwater contamination,” Zheng says, many industries and individuals pollute with impunity. Another lacuna is basic research. The plan pays short shrift to elucidating the science of groundwater pollution, experts say.

(http://www.sciencemag.org/content/334/6057/745.full)

6. Engineering Practice within Chinese and Swiss Culture

(swissnex China, 28-11-2011)

Following up the successful previous two editions of module “Engineering Practice within Chinese and Swiss Culture” of the MSE – Master of Science in Engineering (briefly called MSE-China), the third cycle took place between August 22nd and September 10th. Different from the first two cycles, the third one

was organized by SUPSI—the University of Applied Sciences and Arts of Southern Switzerland, but with the participation of all the Swiss Universities of Applied Science, in particular HESSO—the University of Applied Science of Western Switzerland and ZHAW—the University of Applied Science of Zurich. A total of 21 students participated the module, including 9 Chinese students.

Two main ideas are behind this course. First, the Universities of Applied Science and the Office for Professional Education and Technology have expressed the internationalization as one of the corner stones of the development strategy of the Universities of Applied Science. Second, China has become the largest export market for the Swiss industries and more than 50% of all exports to China are in the area of precision technology and manufacturing. The course wants to bring together these two ideas and introduce to the MSE students a direct, on site experience of the Chinese market for the Swiss industries. It shows what are the difficulties to enter the China market but also the ways and possibilities to overcome these difficulties.

With the support of swissnex-China, students from SUPSI, HESSO and ZHAW had a 3 weeks' study period in China, especially in the Yangtze River Delta and Pearl River Delta. Considering the different background of the students (mechanical, informatics, electronic, material, management engineering), subjects have a broad range, such as Total Productive Maintenance and Experience of Implementation in China, Setting up Successful Quality Manufacturing in China, Sustainable Innovation and Innovation for Sustainability, Dongguan City as an Example of New Developed City, Chinese Economy, Chinese Culture, Is Quality in Asia a Question of the Culture?, China's Special Economic Zone: Its Role for the Transformation of China, Introduction to Mechanical Metal Forming Press: comparison between Swiss and Chinese technology, Swiss Precision in China for the Die and Mould Industry, Battery Electric Vehicle: Development and Present Status, Opportunities for Sino-Swiss Cooperation, Water Pollution and Wastewater Treatment in China and Cooperation with Switzerland.

Furthermore, this course module includes industry visits. 14 industrial visits were organized in 2008, 9 in 2009, and 12 in 2011. The industries are Chinese and foreign (mainly Swiss) owned companies covering different sectors like electronics hardware, shoes, medical instrument, watches, car, machine tools and tooling, textile machines, plastics, etc.This module helps students to understand Chinese and Swiss culture, to know the reality and need of industry. Also, it helps the interaction between Swiss and Chinese students, getting well with each other, minimizing the side effects of culture difference in the future study in Switzerland

7. 12 Projects Staged to Attract Talents

(MoST, 20-11-2011)

Chinese authorities recently released a detailed plan to implement 12 major talents projects defined by the National Medium and Long Term Talents Development Planning (2010-2020), aiming at the following objectives:

1) "Innovation Talents Program". Led by the Ministry of Science and Technology, the program is designed to by 2020 establish 100 scientist's studios, produce 3,000 young and middle aged tech innovators, finance 1,000 qualified entrepreneurial talents on an annual basis, establish 500 innovation teams in the priority areas, and build 300 innovation role model training and demonstration centers.

2)"Young Talents Development Program". The program is created by the CPC Central Committee Organization Department to nurture 2,000 top-notch young talents under the age of 35, screen out 1,200 top-notch students from renowned research universities on an annual basis, and select 2,000 outstanding high school and college graduates to further their training at renowned overseas universities.

3) "Capacity Building of Business Management Personnel ". The program is sponsored by the State-owned Assets Supervision and Administration Commission to bring out 500 senior entrepreneurs with global vision and top business ability by 2020, and nurture 10,000 high caliber business management personnel.

4) "High-Quality Educator Training Program". Initiated by the Ministry of Education, the program is meant to train 20,000 school teachers, disciplinary leaders, and principals on an annual basis, and nurture educators, famous teachers, and disciplinary leaders for primary and secondary schools (including kindergarten), vocational schools, and universities.

5) "Famous Cultural Talents Program ". Led by the CPC Publicity Department, the program is created to fund 2,000 renowned specialists in the areas of philosophy, social sciences, journalism, publishing, radio and television, culture and arts, cultural heritage protection, cultural business management, and cultural technologies, allowing them to be part of major researches, projects, performances, creative researches, exchange and shows, monographs publication among others.

6) "Health Talents Program". Initiated by the Ministry of Health, the program is designed to by 2020 foster high caliber medical personnel, securing special funds for related earmark researches. Efforts will be made to standardize residency training, and bring out 50,000 resident physicians for different disciplines. Meanwhile, some 300,000 general practitioners will be trained under the program.

7) "High Caliber Overseas Talents Program". The program is sponsored by the CPC Central Committee Organization Department to implement a range of related programs or projects, including a "Thousand Talents Program" at the central level, short and long term innovation projects, humanities and social sciences projects, a "thousand young talents program", a “thousand foreign experts program", and business pioneering projects among others. It plans to attract high caliber overseas talents to establish their own businesses in China in 5 to 10 years.

8) "Professional Knowledge Updating Project". The project is a large knowledge updating campaign established by the Ministry of Human Resources and Social Security to train 100 million senior specialists in 12 areas, including equipment manufacturing, IT, biotechnology, and new materials. Meanwhile, efforts will be made to establish a number of national further education centers for professionals and technical personnel.

9) "Highly Skilled Personnel Program". Created by the Ministry of Human Resources and Social Security, the program will by 2020 bring out 3.5 million new technicians and one million senior technicians, making the total number of technicians and senior technicians in the country reach 10 million in number. Meanwhile, it plans to build 1,200 training centers to bring out more highly skilled personnel.

10) "Modern Agriculture Talents Program". The program is initiated by the Ministry of Agriculture to finance, by 2020, 300 high caliber researchers in the area of agriculture, and to support 10,000 personnel who have made outstanding contributions to diffusing advanced agricultural techniques.

11) "Human Resources Support Program for Remote, Poverty, Ethnic, and Veteran Revolutionary Areas”. Sponsored by the CPC Central Committee Organization Department, the program is designed to guide, 100,000 outstanding teachers, doctors, scientists, technical personnel, social workers, and cultural workers by 2020, to work in or provide services to the remote, poverty, ethnic, and veteran revolutionary areas on an annual basis.

12) "College Graduates Training at Grass-Roots Program". The program is created by the CPC Central Committee Organization Department to work on a range of sub-programs for college graduates being a village official, creating ad hoc positions for rural school teachers, free teacher education and training, free medical students training, college graduates working in the rural areas, and student volunteers providing services to the western region.

(http://www.most.gov.cn/eng/newsletters/2011/201111/t20111122_90996.htm)

Events (December 2011 - January 2012)

December 2011

International Conference on Environment and Health
Date: December 12th
Place: Xiamen

Contact: Institute of Urban Environment, China

The 4th Guangzhou International Conference on Stem Cell and Regenerative Medicine
Date: December 14th
Place: Guangzhou
Contact: Guangzhou Institute of Biomedicine and Health, CAS

Hadoop in China 2011
Date: December 2nd to 3rd
Place: Beijing Convention Center
Contact: Institute of Computing Technology, CAS

The 2011 International Conference on Computer, Communication and Information Technology
Date: December 3rd to 4th
Place: Beijing
Contact: http://www.icccit.org

3rd International Conference on Smart Materials and Nanotechnology in Engineering
Date: December 5th to 8th
Place: Shenzhen
Contact: Harbin Institute of Technology

2nd Unconventional Gas Asia Summit 2011
Date: December 6th to 9th
Place: China
Contact: http://www.szwgroup.com/2011/unconventional/

Intersolar China (Conference and Exhibition)
Date: December 6th to 9th
Place: Beijing
Contact: http://www.intersolarchina.com/

World Deepwater Summit & Expo
Date: December 6th to 9th
Place: Shanghai
Contact: http://www.worlddeepwaterexpo.com

Network gathering IT-offshoring / Prof. Knolmeyer University Bern
Date: December 7
Place: Shanghai/Swissnex China
Contact: http://www.swissnexchina.org

International Conference on Computer Science and Software Engineering
Date: December 9th to 11th
Place: Wuhan
Contact: http://www.ciseng.org/csse2011

International Conference on Mechatronics and Materials Engineering 2011
Date: December 10th to 12th
Place: Qiqihar
Contact: Qiqiha'er University

Launch of European Hungtington's Disease Network / Prof. Burgunder, University Bern
Date: December 10
Place: Shanghai/Swissnex China
Contact: http://www.swissnexchina.org

3rd China Solid Waste Summit 2011
Date: December 13th to 14th
Place: Shanghai
Contact: http://www.solidwastesummit.com

The 2nd International Conference on Advanced Material and Manufacturing Processes
Date: December 16th to 18th
Place: Guilin
Contact: http://www.icammp.org

2011 International Conference on Chemical, Material and Metallurgical Engineering (ICCMME 2011)
Date: December 23rd to 25th
Place: Beihai
Contact: University of Guangxi

January 2012

IEEE International Conference on Health Informatics
Date: January 5th
Place: Hong Kong, Shenzhen
Contact: http://bhi2012.embs.org

2012 International Conference on Innovation and Information Management
Date: January 7th to 8th
Place: Chengdu
Contact: http://www.iciim.org

2012 International Conference on Electrical Energy and Networks (ICEEN 2012)
Date: January 7th to 8th
Place: Chengdu
Contact: http://www.iceen.org

2012 International Conference on Information, Computing and Telecommunications
Date: January 7th to 8th
Place: Harbin
Contact: http://www.icict.net/main

2012 International Workshop on Image Processing and Optical Engineering
Date: January 8th to 9th
Place: Harbin
Contact: Harbin University of Science and Technology

Asia Wind Power Congress 2012
Date: January 12th to 13th
Place: Shanghai
Contact:
http://www.broadersinc.com/apwc2012

Lecture Realize 2011 by Prof. Siegwart (ETHZ)
Date: January 14
Place: Shanghai/Tongji
Contact: http://www.swissnexchina.org

International Conference on Mechanic and Materials Research
Date: January 14th to 15th
Place: Dalian
Contact: http://www.icmmr.org