



# Science, Technology and Education News from China

## Number 82 – April 2011

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### **Introduction**

The month of April was marked by the official visit of Federal Councillor Didier Burkhalter, Head of the Swiss Federal Department of Home Affairs (including Science, Education, Health and Culture) to China, where he met with State Councilor Liu Yandong, the Ministers or Vice-Ministers of Science & Technology, Education and Health as well as with various institutions in order to deepen the Sino Swiss Science and Technology Cooperation. This month's newsletter starts with an analysis of the Ministry of Science and Technology's budget for 2011. Also in this month, Tsinghua University celebrates its 100 years anniversary amongst doubts and critics. In science, nuclear crisis in Japan didn't stop China from advancing nuclear technologies. China is also planning to have its own space station by 2020. In health, recent food security scandals have led the Ministry of Health to vow greater efforts to safeguard food security.

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<sup>1</sup> Please click on the blue texts to activate the hyperlinks to either email addresses or related websites.



## Policies

### Science and Education Outlook in China's 12<sup>th</sup> Five-Year-Plan

The Ministry of Science and Technology (MoST) released the budget for 2011, one year after the first budget release in April 2010. The total budget of MoST in 2011 reaches **CNY 24.7 billion (= CHF 3.3 Mrd.)**, a CNY 3.7 billion (+15%) increase from the 2010 budget. MoST also became the first Chinese Ministry to release their 2011 budget for “overseas travels, receptions and government cars,” which is **CNY 40 million**.

The major expenses in 2011 (in CNY) are expected to be seen in (in comparison to de facto expenditure 2010):

- Diplomacy, to be spent in Chinese representations overseas, international aid, membership fee/donation to international organizations: 91.5 million (+50.15%)
- Research in Applied Sciences, to be spent in high-tech research and development projects: 8.78 billion (+14.69%)
- Technology research and development, to be spent in national science and technology projects: 6.01 billion (+15.56%).
- Basic research: to be spent in national basic research development projects, state key labs: 3.7 billion (- 11.9% but +21% compared to budget 2010).
- Cooperation in science and technology, mainly to be spent in international cooperation and exchange in science and technology and ITER project: 1.74 billion (-24.7% but +32% compared to budget 2010).
- Administrative affairs, mainly to be spent in administrative and operational affairs: 90 million (- 17.5%).
- Science Service, mainly to be spent on science and technology database, science facility/infrastructure: 473 million (+12.35%)
- Popular science, mainly as project funds for S&T week: 10 million (+ 0%).
- Key S&T projects, mainly to be spent in project management: 1.5 million (-57.14%).
- Others, to be spent in pensions, S&T awards, etc. 2.49 billion (+ 3.29%).

The most obvious increase appeared in “diplomacy” category where MoST plans to significantly increase funding for international aid: 72 million (+71.43%) and membership fee and donation to international organizations 1.26 million (+14.95%). Funding is also quite generous with technology development sector, but is mainly used to support science and technology projects, which further empowers MoST to be the major funding institution and the major policy-making institution in the scientific landscape.

Basic research (3.2 billion budget/4.2 billion spending) and S&T cooperation (1.31 billion budget/2.31 billion spending) are two segments where MoST over-spent in 2010. The additional spending went mainly to ad-hoc projects in 2010, resulting in a decrease of budget for 2011 but still maintaining two-digit growth from budget 2010.

The real decrease of budget can be found in the following segments: administrative affairs (-19.4 million), research and development of applied technology (-76 million), technology transfer and commercialization (-2 million). No specific information on the reason for such cut is available.

All main actors in S&T, including the Ministry of Education, the Natural Science Foundation, the Academies of Sciences and others, or receiving additional funding and MoST is certainly no exception. However, the case of MoST shows that this increase of budget is not necessarily followed by an increase in staff or administrative funding for the institutions.



## News

### 1. Tsinghua Marks Century of Scholarship

(SCMP, 25-04-2011)

A star-studded line-up of politicians, academics, presidents of world-class universities [NOTE: including EPFL and ETHZ] and business tycoons - including six of the nine members of the Politburo Standing Committee - joined a grand celebration for the centenary of Tsinghua University on April 24<sup>th</sup>.

President Hu Jintao, one of the school's most prominent alumni, seized the opportunity to call again upon universities to make raising the level of teaching and research a top priority, to help the mainland become more creative.

The celebration came as Tsinghua leads a government-sanctioned push by top mainland universities to seek international prestige.

"To build several world-class universities and many more with higher standards in teaching and research is a major step for a country with strength in cultivating talent and creativity," Hu said.

The high-profile celebration at the Great Hall of the People and a late-night gala climaxed two weeks of festivities at Tsinghua, which included international forums and alumni activities.

It also came as critics point to a rigid school-governance regime that has compromised academic freedom and independent thinking - two of the core values Tsinghua was built upon 100 years ago.

It is clear that Tsinghua and other top schools cannot hold on to the mainland's brightest students, who are increasingly choosing to continue their studies overseas.

Perhaps indicative of the problem is the fact that Tsinghua officials cannot reach a consensus on a target date for becoming a world-class university. In 1993, it laid out a road map to join the ranks of the elite institutions, but one version set this year as the date, and another said 2020.

The vagueness continued on April 24<sup>th</sup>, when Tsinghua president Professor Gu Binglin set the goal for the middle of this century.

This much is evident: whatever the target, Tsinghua is not there yet.

[...]

Tsinghua ranked 58th on Britain's Times World University Rankings for last year, up four places compared with 2005; and a distant 151st on the 2010 Academic Ranking of World Universities compiled by Shanghai-based Jiao Tong University, up two places from five years before.

<http://www.scmp.com/portal/site/SCMP/menuitem.2af62ecb329d3d7733492d9253a0a0a0/?vgnnextoid=d2db8cd89d78f210VgnVCM100000360a0a0aRCRD&ss=China&s=News>

### 2. China to Encourage High-tech Reactors, Uranium Exploration

(Reuters, 26-04-2011)

The National Development and Reform Commission included the nuclear sector in a list of industries it aims to encourage in the coming years as part of its attempt to restructure its economy.

It said China would also promote advances in **uranium isotope separation technology**, the **handling of spent fuel** and the **prevention and detection of radiation**.



The Chinese nuclear sector is still awaiting details of a strategic review of the industry in the wake of the Japanese earthquake and tsunami on March 11, which left the aging Fukushima reactor complex on the brink of meltdown.

China said on March 16 that it would "adjust and improve" its plans for the nuclear industry, and would halt further project approvals until it had finished inspecting existing reactors and construction sites.

Government and industry officials have so far stressed that China will not give up on its long-term commitment to developing nuclear power, but said that the pace of construction could be slowed down to allow the country to build the necessary manufacturing and regulatory capacity.

Before the Japanese nuclear crisis, many in the industry expected China to unveil a new 2020 capacity target of 80-90 gigawatts, but experts now anticipate a figure of about 75 gigawatts.

China's total installed nuclear capacity stood at just 10.8 gigawatts by the end of 2010.

<http://www.reuters.com/article/2011/04/26/us-china-nuclear-idUSTRE73P1CX20110426>)

### 3. **China to Boost Integrated Circuit Sector as "State Strategy"**

(Xinhua, 06-04-2011)

China will boost the integrated circuit (IC) sector at a "state strategy" level over the next five years through 2015, Yang Xueshan, vice minister of industry and information technology has said. China's IC sales will likely top 330 billion yuan (50.54 billion U.S. dollars) in 2015 and meet 27.5 percent of domestic demand, Yang told Xinhua.

Also, the sector will produce a series of chips with independent intellectual property rights. Under the plan, development of about 30 percent of the IC products used by China's major whole-set enterprises would occur domestically, Yang said.

IC production demands intensive capital and technology. For example, designing a 45-nanometer IC requires 40 million U.S. dollars and building a 12-inch production line costs 2.5 billion U.S. dollars, said Xiao Hua, director of the information department of the Ministry of Industry and Information Technology (MIIT).

Yang said that a nation must support the development of the IC sector, and China lags far behind the United States, Japan, the Republic of Korea and other countries in providing state support to the sector.

China's IC producers are mostly medium-sized or small enterprises with limited funds and technology. Yang said that China's relevant departments would support and coordinate IC production with linkages including research, manufacturing and marketing during the 12th Five-Year Program (2011-2015) period.

China's IC sales reached 144.02 billion yuan in 2010, making up about 8.6 percent of the global market, according to the MIIT. As the world's largest IC market, China can only meet 20 percent of its domestic demand with independently designed IC products.

China has faced challenges in boosting the IC sector because of outdated equipment, said Xu Xiaotian, executive deputy director general of the China Semiconductor Industry Association (CSIA).

The MIIT expects China's IC market to top 1.2 trillion yuan in 2015. IC products add significant value to products. A 3G mobile phone chip, for example, is responsible for about half of the phone's total cost.

China's chips rely heavily on imports. The country's imports of IC products topped 156.99 billion U.S. dollars in 2010, according to the MIIT.

[...]

[http://news.xinhuanet.com/english2010/sci/2011-04/16/c\\_13831924.htm](http://news.xinhuanet.com/english2010/sci/2011-04/16/c_13831924.htm))



#### 4. **China Drafting Special Law on Climate Change: Official**

(Xinhua, 27-04-2011)

China's chief negotiator to UN climate change talks said here on Tuesday that the country is drafting a special law dedicated to climate change and will explore a low carbon development path suitable to China.

"We are in the process of preparing for a special law dedicated to climate change and we have already set up a working group and started the preliminary work," Xie Zhenhua said while attending the launch of a study of climate change-related legislation by Global Legislators Organization (GLOBE).

Xie, vice chairman of the National Development and Reform Commission (NDRC), China's top economic planning body, said China attached great importance to the legislation of climate change and has already published relevant regulations concerning the management of Clean Development Mechanism (CDM) projects and international cooperation on climate change.

In its latest efforts, the National People's Congress, China's top legislature, has approved the country's 12th Five-Year Plan in March, identifying the proactive approach to combat climate change as a key element.

According to the plan, China will reduce energy consumption per unit of gross domestic product (GDP) by 16 percent and lower CO2 emission per unit of GDP by 17 percent in the next five years. And the targets are "legally binding domestically," Xie said.

The vice chairman said that China will draw on experiences from other countries in climate change legislation and deepen cooperation with its global partners.

The study launched by GLOBE revealed that legislation is being advanced, to varying degrees, in all of the 16 major economies.

"It is particularly encouraging that the large developing countries of Brazil, China, India, Mexico and South Africa-- who together represent the engine of global economic growth"-- are developing comprehensive laws to tackle climate change," the report noted.

But the report said that current legislation does not yet, cumulatively, add up to what is necessary to avoid dangerous climate change.

GLOBE said it hoped that the report will act as a baseline from which legislators will work to further advance legislation in 2011 and beyond.

[http://news.xinhuanet.com/english2010/china/2011-04/27/c\\_13847244.htm](http://news.xinhuanet.com/english2010/china/2011-04/27/c_13847244.htm)

#### 5. **Countdown Starts for China's Space Station in 2020**

(People's Daily, 26-04-2011)

Authorities in charge of the manned space program unveiled plans on Monday to build a 60-ton space station, made up of three capsules, and develop a cargo spaceship to transport supplies.

The China Manned Space Engineering Office said at a news conference that it also wants the public to get involved by suggesting names for the space station, due to completed around 2020.

According to documents provided by the office, the space station, weighing about 60 tons, is composed of a core module and two others where experiments will be conducted.

A cargo spaceship to transport supplies will also be developed.

The 18.1-meter-long core module, with a maximum diameter of 4.2 meters and a launch weight of 20 to 22 tons, will be launched first.

The two experiment modules will then blast off to dock with the core module. Each laboratory module is 14.4 meters long, with the same maximum diameter and launch weight of the core module.



"The 60-ton space station is rather small compared to the International Space Station (419 tons), and Russia's Mir Space Station (137 tons) which served between 1996 and 2001," said Pang Zhihao, a researcher and deputy editor-in-chief of the monthly magazine, Space International.

"But it is the world's third multi-module space station, which usually demands much more complicated technology than a single-module space lab," he said.

The office also said that China will develop a cargo spaceship, with a maximum diameter of 3.35 meters and a launch weight less than 13 tons, to transport supplies and lab facilities to the space station.

The public is being asked to submit suggestions for names and symbols to adorn the space station.

"Considering past achievements and the bright future, we feel that the manned space program should have a more vivid symbol and that the future space station should carry a resounding and encouraging name," Wang Wenbao, director of the office, said at the news conference.

([http://news.xinhuanet.com/english2010/china/2011-04/26/c\\_13846112.htm](http://news.xinhuanet.com/english2010/china/2011-04/26/c_13846112.htm))

## 6. **China's Health Ministry Vows Greater Efforts to Safeguard Food Safety**

(*Xinhua News*, 26-04-2011)

China's health authorities will intensify its crackdown on the illegal adding of non-edible materials to food and tighten supervision against abuse of food additives, according to a circular issued by the Ministry of Health.

The ministry in the circular issued on April 25 demanded greater efforts from local health administration agencies in investigating and handling of cases that involve the adding of non-edible materials to food. A system for reporting food safety incidents and organizing investigations should be created by local health authorities, the circular said.

The ministry also urged health authorities to improve their emergency response system for food safety accidents and include experts in their investigation teams. Local health authorities should better work with other government agencies to root out those inspection or certification agencies responsible for dereliction of duty in food safety cases, the circular said.

China has blacklisted 151 materials forbidden in food or which have been improperly used in food for human consumption and livestock feed over the past nine years, according to figures released by the food safety committee under the State Council, or China's cabinet. The materials include 47 inedible materials that may be added illegally to food for human consumption, 22 food additives that are easily abused and 82 substances forbidden in feed and drinking water for animals.

The health ministry stressed in the circular that those blacklisted non-edible materials and additives should become the key targets during food safety supervision of health administration authorities at various levels. "Tests should be conducted immediately, if any non-edible materials or abuse of food additives are found in food during investigations into rare illnesses with suspected links to tainted food," the circular said.

The country's cabinet recently ordered an intensified crackdown on the illegal use of non-edible materials in food. Non-edible materials are banned from use in food, said the circular posted last week on the official website of China's central government. Use of any food additive or flavoring that are uncertified or bear no standard information as to its manufacturers, or overuse of such materials, are also prohibited, the State Food and Drug Administration said. These moves came after a series of food safety scandals including clenbuterol-tainted pork and dyed steamed buns have surfaced in recent months despite Chinese authorities' efforts to revamp the country's food industry.

([http://news.xinhuanet.com/english2010/china/2011-04/26/c\\_13846854.htm](http://news.xinhuanet.com/english2010/china/2011-04/26/c_13846854.htm))



## Events (May– June 2011)

### May 2011

#### **1<sup>st</sup> Swissnex China Lecture**

Date: May 6<sup>th</sup>  
Place: Shanghai  
Contact: Swissnex China

#### **International Smart Grid Congress Asia 2011**

Date: May 10<sup>th</sup> to 13<sup>th</sup>  
Place: Beijing  
Contact: <http://isgcc.org>

#### **Sino Swiss Biotech Forum**

Date: May 11<sup>th</sup>  
Place: Beijing Hilton  
Contact: Swiss Business Hub, Beijing, in collaboration with Swissnex China

#### **Asian Congress on Biotechnology 2011**

Date: May 11<sup>th</sup> to 15<sup>th</sup>  
Place: Shanghai  
Contact: Asian Federation of Biotechnology

#### **1<sup>st</sup> Art Science Society Lectures 2011**

Date: May 11<sup>th</sup>  
Place: Shanghai  
Contact: Swissnex China

#### **China Glass 2011**

Date: May 11<sup>th</sup>  
Place: Shanghai  
Contact: Chinese Ceramic Society, CAST

#### **The 2<sup>nd</sup> Beijing International Modern Agricultural Exhibition**

Date: May 11<sup>th</sup>  
Place: Beijing  
Contact: Beijing International Science and Technology Center

#### **Exhibition: From Pyramids to Spacecrafts**

Date: May 15<sup>th</sup> to 22<sup>nd</sup>  
Place: Shanghai  
Contact: Swissnex China

#### **6<sup>th</sup> International bHLH Symposium on Development and Disease**

Date: May 15<sup>th</sup>  
Place: Shanghai  
Contact: Shanghai Institute for Biological Sciences, CAS

#### **The 4<sup>th</sup> Asia Pain Symposium**

Date: May 16<sup>th</sup>  
Place: Shanghai  
Contact: Shanghai Institute for Biological Sciences, CAS

#### **YOTC Scientific Symposium**

Date: May 16<sup>th</sup>  
Place: Beijing  
Contact: Institute of Atmospheric Physics, CAS

#### **2011 International Conference on Groundwater Pollution and Water System Security**

Date: May 23<sup>rd</sup>  
Place: Beijing  
Contact: Graduate University of Chinese Academy of Sciences, CAS

#### **4<sup>th</sup> Workshop on Sino-French Joint Laboratory for Sustainable Energy**

Date: March 23<sup>rd</sup>  
Place: Guangzhou  
Contact: Guangzhou Institute of Energy Conversion, CAS

#### **2010 (Guangzhou) Exhibition & Conference on Instrumental Analysis and Biotechnology**

Date: May 24<sup>th</sup>  
Place: Guangzhou  
Contact: Guangdong Foreign Science and Technology Exchange Center

#### **2011 China International Machinery & Electronics Expo**

Date: May 26<sup>th</sup>  
Place: Ningbo  
Contact: China Machinery Industrial Federation

#### **7<sup>th</sup> International Symposium on Bioinformatics Research and Applications**

Date: May 27<sup>th</sup> to 29<sup>th</sup>  
Place: Changsha  
Contact: <http://www.cs.gsu.edu/isbra/>

#### **8<sup>th</sup> International Conference on Neural Network**

Date: May 29<sup>th</sup>  
Place: Guilin  
Contact: Institute of Automation, CAS



## June 2011

### **2<sup>nd</sup> Art Science Society Lectures 2011**

Date: June 1<sup>st</sup>  
Place: Shanghai  
Contact: Swissnex China

### **2011 International Symposium on Environmental Science and Technology**

Date: June 1<sup>st</sup> to 4<sup>th</sup>  
Place: Dongguan  
Contact: Chinese Society for Environmental Sciences

### **2<sup>nd</sup> Swissnex China Lecture**

Date: June 3<sup>rd</sup>  
Place: Shanghai  
Contact: Swissnex China

### **International Forum on Resources, Environment and Sustainable Development of Northeast Asia and Central Asia**

Date: June 8<sup>th</sup>  
Place: Beijing  
Contact: Institute of Geographic Sciences and Natural Research, CAS

### **The Second International Conference on Plant Secondary Metabolites**

Date: June 8<sup>th</sup>  
Place: Shanghai  
Contact: Shanghai Institute for Biological Sciences, CAS

### **2011 International Conference on Industrial Technology and Management (ICITM 2011)**

Date: June 10<sup>th</sup> to 12<sup>th</sup>  
Place: Chengdu  
Contact: <http://www.icitm.org>

### **2011 International Conference on Knowledge and Education Technology (ICKET 2011)**

Date: June 10<sup>th</sup> to 12<sup>th</sup>  
Place: Chengdu  
Contact: <http://www.icket.org>

### **2011 China (Shanghai) International Heavy Machinery Equipment Exhibition**

Date: June 11<sup>th</sup>  
Place: Shanghai  
Contact: Chinese Mechanical Engineering Society

### **2011 International Conference on Computer and Network Engineering (ICCNE 2011)**

Date: June 17<sup>th</sup> to 19<sup>th</sup>  
Place: Zhengzhou  
Contact: <http://www.iccne.org>

### **The 12<sup>th</sup> World Conference on Titanium**

Date: June 19<sup>th</sup>  
Place: Beijing  
Contact: China Nonferrous Metal Association, CAST

### **International Meetings on Solid Sensors, Actuators and Microsystems**

Date: June  
Place: Beijing  
Contact: Institute of Electronics, CAS

### **China International Petrochemical Industry Congress 2011**

Date: June 22<sup>nd</sup> to 25<sup>th</sup>  
Place: Tianjin  
Contact: <http://www.cipic.com.cn>

### **The 19th International Conference on Geoinformatics**

Date: June 24<sup>th</sup> to 26<sup>th</sup>  
Place: Shanghai  
Contact: East China Normal University

### **The 8<sup>th</sup> International Conference on Service Systems and Service Management**

Date: June 25<sup>th</sup> to 27<sup>th</sup>  
Place: Tianjin  
Contact: Nankai University