



Research and Environment News from China

Number 42 – December 2007

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Introduction

We wish you a happy new year!

During the recent China-US Innovation Conference, Vice-Minister of Science and Technology and Deputy Secretary of the Leading Party Group Li Xueyong admitted that China now needs to include innovation in its economic development, and that China will cooperate more actively and protect intellectual property rights with other countries in order to share the fruits of technological advancement. Officials admit that more efforts needed to protect IPR. Over 60,000 IPR infringement cases have been handled in past 5 years.

The Chinese government published its first-ever white paper on its energy conditions and policies, which claims efforts to reduce greenhouse gases emissions, support renewable energy and cleaner utilization of existing sources of energy, in particular coal. China is the world's second biggest energy producer.

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Science & Technology

New navigation system set for Beijing Olympics

(China.org.cn, 2007-12-06)

China's independently developed Compass Navigation Satellite System (CNSS) has acquired area navigation capacity and will first be used for the 2008 Beijing Olympic Games, the *Shanghai Morning Post* reported from the NaviForum Shanghai 2007 press conference.

Soon the self-developed CNSS with similar functions to the Global Positioning System will be able to navigate tours. "Currently the CNSS has 5 navigation satellites and more will be launched in 2008," Ran Chengqi, vice director of the China Satellite Navigation Engineering Center said at the press conference.

The country established a trial compass navigation system in 2003 and this trial system could provide positioning, timing, and telegraph functions for China and the surrounding areas. It has been applied to transportation, fishery, exploration, and forest fire prevention; the subsequently established CNSS has improved function.

This system will be used to divert traffic and monitor game venues during the Beijing Olympic games. It can tell the driver the shortest way and find him the route by which he can most quickly get to his destination, considering the actual state of the roads.

It is predicted that the CNSS will be used in Shanghai before 2010.

7 Chinese mathematicians rewarded Morningside Medals

(Xinhua News Agency, 2007-12-18)



Seven outstanding Chinese mathematicians were recognized with the Morningside Medal of Mathematics here on Monday. The awards, also known as Chinese Fields Medal, were presented at the Fourth International Congress of Chinese Mathematicians (ICCM) in the capital of east China's Zhejiang Province.

Wang Xujia, a professor from the Australian National University Mathematics and its Applications Center, won the gold medal for his contribution to fully nonlinear equations and Hessian's theory.

Statistician Fan Jianqing, who creatively applied mathematics into statistics, received the applied mathematics gold medal. Silver medals were awarded to Liu Chiu-chu, Ji Lizhen, Jin Shi, Chen Chiun-chuan and Tian Ye.

ICCM's fourth congress has drawn over 1,200 participants of Chinese descent from around the world. Presidents of some top universities and 30 other experts were also in attendance.

ICCM Chairman Yau Shing-Tung spoke highly of the winners. "They have made great contributions in their fields. Their achievements reflect the development of Chinese mathematics in the past 10 years."

"Mathematics knows no boundary. It is key to the development of Chinese mathematics that Chinese mathematicians cooperate with their non-Chinese counterparts." Yau hoped that the conference would serve as a platform for exchange.

ICCM is a triennial event that brings together Chinese and overseas mathematicians. The three previous conferences were held in Beijing, Taipei and Hong Kong in 1998, 2001 and 2004, respectively.

Scientists address alien invasion

(Xinhua News Agency, 2007-12-14)

More than 20 alien species have invaded China over the past decade and the situation is set to get worse, scientists have said. Guo Yuyuan, a researcher with the Institute of Plant Protection at the Chinese Academy of Agricultural Sciences, said China is one of the countries most affected by invasive species and has so far recorded more than 400.

Speaking at a recent symposium in Fuzhou, capital of Fujian Province, Guo, who is also an academician of the Chinese Academy of Engineering, said that more than half of the 100 dangerous alien species listed by the World Conservation Union have been found in China.

Xie Lianhui, an academician of the Chinese Academy of Sciences, said the invasion of alien species is on the rise in China due to fast-growing foreign trade, and has brought about an increasing number of biological problems. Wan Fanghao, an official with the Ministry of Agriculture, said some species have already caused disasters in the country.

The American white moth, for example, which is native to North America and first detected in Liaoning Province in 1979, is currently posing a threat to forests and crops in 116 counties of six provinces and municipalities including Beijing, Tianjin, Hebei and Liaoning, according to the State Forestry Administration (SFA).

The moths cause enormous damage to trees and crops and reproduce at a rapid rate, biologists with the SFA have said. A single female can produce up to 200 million offspring every year.

Zhu Lieke, vice-director of the SFA said at a forum in September that 32 alien species cause 56 billion yuan (\$7.6 billion) worth of damage to China's forestry industry every year. Harmful species damage 10.7 million hectares of forest annually, 20 percent of which is attributable to alien species, he said.



A total of 127 scientists from across the country attended the Fuzhou symposium where they signed the Fuzhou Accord, which calls for the establishment of a national society on alien species and enhanced cooperation with foreign counterparts.

China's pride in lunar probe

(Xinhua News Agency, 2007-12-12)

China officially celebrated its successful launch of the country's first lunar probe, Chang'e-1, on Wednesday.

It announced success of the first stage of its lunar probe program on Nov. 26, when the first moon picture captured by Chang'e-1 was published.

Here are some facts Chinese scientists take pride in, revealed at the grand ceremony for the occasion held in Beijing on Wednesday morning.

- It's the first time for China to conduct direct probe into an outer-space celestial body other than the earth.
- Working staff with the probe project are on average aged below 35, youngest ever in China's space history.
- Chinese scientists succeeded in accurate remote control of a satellite about 400,000 kilometers away from the earth, with error rate played down from 1.7 percent to 0.03 percent for orbit control.
- The project realized seamless connection of domestic space control network with astro-observation network and that of European Space Agency, which provided support in remote control of Chang'e-1.
- China has acquired up-to-date technologies for control and navigation of satellites with high precision as well as advanced technologies for long-distance remote control and satellite thermal control without a deep space antenna.
- Chinese scientists built, with self-developed design and technologies, two giant antennae with diameters at 40 meters and 50 meters, the largest ever in China's history, to receive data sent back by Chang'e-1.

Innovative technology co-op to be stepped up

(China Daily, December 11, 2007)

China will strengthen innovative technological cooperation with foreign countries for mutual benefit, Vice-Minister of Science and Technology Li Xueyong said yesterday.

Addressing the China-US Innovation Conference in Beijing, Li said: "We hope to provide more policies and standards to encourage innovative technology that conform to international rules."

An efficient international innovation cooperation platform needs to be set up since China is trying to shift the base of its economic development mode from investment to technology, he said.

"China will cooperate more actively with other countries to share the fruits of technological advancement and protect intellectual property rights (IPR)."

IPR protection and setting international standards are among the key issues in building an innovative society, US Secretary of Commerce Carlos Gutierrez said. "The cooperation between China and the US is quite important because 40 percent of the world's economic growth comes from the two countries."

"We can benefit greatly from international collaboration and global standards - a common language for innovation."

The weeklong conference's aim is to help share innovation experiences, and promote technological cooperation between the two countries' governments, enterprises and research institutes.



That China has a good innovation and development environment is borne out by Microsoft's decision to choose it as its R&D center in the Asia-Pacific region.

Asserting the fact, Microsoft Vice-President and Microsoft Asia Research Director Ya-Qin Zhang said: "Bill Gates visited a number of countries and universities. And he was quite impressed with the quality and talents of the students and the enthusiasm and passion of the people here."

China is the largest investment market for Microsoft after the US, he said. The company spends \$100 million a year in China-related R&D activities, and plans to increase the amount in the next three to five years.

"We have established innovative collaboration with more than a dozen universities in China and formed close partnerships with several Chinese IT companies, such as Digital China and Inspur (the country's leading computing solutions provider)," Zhang said.

Inspur Group expects to see greater cooperation with the world's leading IT firms, company CEO Sun Pishu said.

"We consider technology innovation as the core power for achieving high speed and sustainable development," he said.

Environment

Firms may have to reveal green details

(China Daily, 2007-12-24)

The State Environmental Protection Administration (SEPA) is attempting to force Chinese companies, both listed and those waiting to be, to regularly reveal environmental information to the public.

Disclosure rules for listed companies could be finalized in the next six months, Ge Chazhong, an official affiliated with SEPA, told *China Daily*. Environmental disclosure and inspection requirements have already been tightened for companies applying for their initial public offer (IPO) of shares.

Companies going public are required by China's existing securities regulations to guarantee disclosure of truthful environmental details together with financial records in IPOs 36 months prior to floating. Deliberate or premeditated cover-ups risk administrative penalty and criminal conviction, according to regulations enacted in May 2006.

Ge said SEPA officials are now working on specific terms for compulsory corporate environmental disclosure for enterprises already listed. He said he hopes for cooperation with the China Securities Regulatory Commission (CSRC) to develop a new set of regulations by mid-2008.

At a recent forum on environmental protection and financial service in Beijing, Ge criticized Chinese public companies for generally poor environmental disclosures containing only "qualitative descriptions" and "scant information".

Some 2006 annual reports included "just a few characters" or "a dozen or so characters" on their environmental responsibilities, he lamented. But in future, SEPA and CSRC will seek to force public companies to provide detailed information in annual reports.

Proper environmental disclosure by publicly listed companies is a key issue because they feature among the country's largest enterprises and have an important bearing on the overall economy, Ge pointed out. Companies



may soon be forced to report key emission indexes, such as SO₂ and CO₂, and records and goals in energy efficiency and emission cuts, along with investment-related data.

If companies fail to comply with the Environmental Protection Law and government regulations, fail also to disclose their environmental performance or release false information, they will be subject to penalty by law and be blacklisted on government websites.

"Once the first draft comes out, we will start consulting with the CSRC and corporate representatives to revise for the final version," Ge told *China Daily*.

He also mentioned a study that found just half of 200 Chinese public companies included environmental details in their 2006 annual reports, with none specifying emissions data and pollution control investment.

Future mandatory environmental disclosure will, according to Ge, facilitate environmental law reinforcement and prompt people to duly weigh environmental factors in investment decisions.

'Violation cost' to be raised for water polluters

(Xinhua News Agency, 2007-12-24)

A draft amendment to the Water Pollution Prevention and Control Law, which was deliberated by Chinese lawmakers on Sunday, significantly raises fines for enterprises failing to fulfill pollution control duties.

The draft was submitted for second review to the 31st session of the Standing Committee of the National People's Congress (NPC), or China's top legislature.

It lifted the restriction on the maximum amount of fines for enterprises blamed for discharging pollutants surpassing the set standard. It said fines for such businesses would vary from twice to five times the pollutant discharging fees they should pay according to the severity of the violations.

Enterprises who failed to rectify the situation within a fixed time would be closed, according to the NPC's Law Committee. The previous draft amendment, which was submitted to the top legislature for first review in August, stipulated the amount of pollutants discharged into water by a factory should not exceed the limit set by national or local regulations. Offenders would be fined 100,000 yuan (US\$13,500) to 1 million yuan.

The NPC's Law Committee, in an explanation of the draft, said: "The amount of fines should be imposed according to the severity of violations, and too little money cannot effectively tackle the long-standing problem of 'low violation cost'."

Inexpensive fines against polluters have been open to debate in China as many said they couldn't effectively curb environmental violations. Environmental officials said that compared with the economic benefits of illegally discharged pollutants, the current level of financial punishment was "a drop in the bucket" for most enterprises.

The draft said victims of water pollution incidents were entitled to get compensation from polluters. The compensation could be more "expensive" for polluters than the fines, the Law Committee said, noting that would further augment their "violation cost."

In such disputes, agents concerned could entrust environmental monitoring institutions to provide relevant data. Such institutions should accept such entrustment and provide authentic statistics, according to the draft. The amendment also encouraged legal institutions to provide legal aid to victims in cases where compensation was sought.



Ecological compensation

The draft amendment also provides for the setting up of an ecological compensation system for drinking water resources.

The draft says China will set up an ecological compensation system for water environment by ways including giving transfer payment to economically underdeveloped regions around drinking water resources or in upper reaches of rivers, lakes and reservoirs.

"It is necessary to effectively solve the conflict between drinking water protection and social economic development," the NPC's Law Committee said in an explanation of the draft. It is because that to strictly control human activities around drinking water resources will inevitably impede the economic and social development of those places.

Though the system has been supported by the State Council, it is better to define through lawmaking its scope, subjects and methods in a bid to adjust the interests between ecological protection and economic construction, the Law Committee explained. The SEPA had been studying the compensation system since the 1990s. So far, it has piloted ecology compensation fee collection programs in 24 state-level natural reserves in 685 counties of 11 provinces.

In September this year, the SEPA issued a document, announcing that the country will launch a pilot program for a national ecological compensation system for natural reserves, mineral resources, and rivers.

Government held accountable

Efforts to protect water environment will be taken as an assessment of government performance, according to the draft.

It said local governments should set target for water environment protection and undergo certain evaluation. Failure or success in achieving environmental targets will be an important assessment of local government performance.

Water pollution is one of the biggest environmental concerns for both the government and public. A 2006 survey revealed China's surface water generally suffered from medium pollution. One third of the 744 samples tested were graded "V", the worst pollution rating. According to SEPA statistics, the administration handled 161 emergency environmental pollution incidents in 2006, 59 percent of which involved water pollution.

100 cities to get environment funds

(China Daily, 2007-12-26)

China's 100 resource-dependent cities will get funding to tackle environmental damage and to launch alternative industries by 2015, the government said yesterday.

The first round of funding will go out by 2010 to cities that have exhausted coal, oil and other resources and face environmental, unemployment and social pressure. The State Council unveiled the package of measures yesterday after a six-year pilot study in Northeast China.

"We aim to solve the environmental and social pressures in these cities to help ensure a stable supply of energy resources," the State Council said.



Coal, oil and other mining companies will pay higher resource utilization fees and taxation under the new policy, to raise funds to tackle environmental degradation. The government will transfer funds from the central coffers for environmental protection and re-employment programs in cities that have already exhausted their resources.

The central government also signaled that it plans to increase energy prices and ensure that resources firms transfer part of their increased revenue to local government and residents for environmental and social security purposes. But although the government's pricing reform plan is already made, it will not be put in place immediately, said Zhu Hongren, a senior official in charge of economic operations at the National Development and Reform Commission.

"The (nation's) higher consumer price index has made it difficult for us to take action at the moment," said Zhu. At least 118 Chinese cities or counties depend on coal mining. Of the more than 8,000 existing mines, 400 have completely run out of resources and two-thirds are getting close to that stage, according to official statistics.

For example, China's famous Daqing oilfield in Heilongjiang Province, which contributes about one-third of the nation's total annual oil production, now has only 30 percent of its proven reserves left and is gradually cutting production.

In some of these cities, the jobless rate is as high as 30 percent and the majority of locals are not included in the social security network, Song Xiaowu, deputy head of the Office for Revitalizing the Old Industrial Base in Northeast China under the State Council, said earlier.

The central government has told its provincial counterparts to "take full responsibility" for curbing environmental pollution, creating jobs and bringing locals into the social security net. "Their performance in fulfilling these duties should be taken as the top criteria when assessing government and officials," the State Council said.

Three Gorges helps avoid 191m tons of greenhouse gas

(Xinhua News Agency, 2007-12-22)

<http://www.china.org.cn/english/environment/236607.htm>

Energy

China publishes energy white paper

(China.org.cn, 2007-12-26)

<http://www.china.org.cn/english/environment/236955.htm>

Health

Human-use bird flu vaccine proved effective

(Xinhua, 2007-12-24)

China announced in Beijing on Monday that its bird flu vaccine for human use had proved to be "safe" and "effective" during the second phase of clinical tests.

The vaccine was jointly developed by the Beijing-based vaccine producer Sinovac Biotech, the first in the world to develop the SARS vaccine, and the Chinese Center for Disease Control and Prevention. The program was also under support of the Ministry of Science and Technology and the Ministry of Health.

Zhang Jiansan, vice-general manager of the Sinovac Biotech, said that the second phase of clinical tests was carried out from September to November with approval of the Chinese State Food and Drug Administration. A total of 402 people aged from 18 to 60 took the test.

Test results indicated that the major index of the vaccine all reached international standards and performed well in human body. None of the test takers experienced any serious negative reaction, proving that the vaccine was safe.



Zhang said that test takers of different ages were given different dosages of vaccine, and all received positive results. "This means the vaccine could be administered widely when treating flu infected people."

"We were able to control the dosage and immunization procedure during the second phase of clinical tests, which also provided us with effective, scientific methods to combat highly infective influenza," Zhang said.

Observers reported that China has completed its technological preparations to combat influenza with the success of bird flu vaccine for human use research and clinical tests. "China is also capable of producing a bird flu vaccine for human use in appropriate quantities," Zhang stressed.

Land loss threatens food safety

(China Daily, 2007-12-26)

The country's food security and social stability will be threatened if arable land shrinks any further, Land and Resources Minister Xu Shaoshi warned Tuesday.

"The illegal acquisition of arable land (for purposes other than agriculture) has endangered food safety and social stability both," Xu said.

The country needs at least 120 million hectares of arable land to grow 700 million tons of grains required to feed its people, he said. But industrial wastes, expanding deserts and salinization have left 6 million hectares non-cultivable. What's more, only 40 percent of the country's 133 million hectares of farmlands have proper irrigation facilities and weather conditions for growing crops, Xu said.

Illegal acquisition of arable land by grassroots governments poses another threat, he said. The country is caught between limited supply of and an unending hunger for land; hence it can meet only half of its annual demand for land needed for industrial construction and infrastructure development.

"Given the growing population and fast industrialization and urbanization, illegal land acquisition will probably continue," Xu said. The government's minimum requirement for stable arable land is 120 million hectares, and the availability of only 121.8 million hectares makes it a "very demanding task to achieve the goal" because of variable factors such as droughts and floods, he said.

Quality arable land, which accounts for only a third of the total, is found mainly in the southeastern parts of the country. But again the demand for industrial and commercial land in that region is very high. Per capita arable land in six provinces and municipalities, including Guangdong and Fujian, and Beijing, has already dropped to below 0.016 hectares, which according to the UN is the minimum needed for food safety.

Xu's warning came at a national conference. Citing figures from recent surveys, Xu said governments at the county, township and village levels are major violators of farmland use rules. For instance, the ministry's crackdown on illegal farmland acquisition that began in September has thrown up 20,000 cases in which grassroots governments rented out 24,000 hectares of farmland illegally.

Gov't set to double health subsidies

(China Daily, 2007-12-27)

The government will double its contributions to the cooperative health scheme for rural and urban areas, the Ministry of Finance said yesterday. The scheme, which is aimed at helping farmers and the jobless in cities, currently provides at least 50 yuan (\$6.80) for each recipient for medical costs.



The amount is made up of 20 yuan from the central government, at least 20 yuan from the local government and 10 yuan from the individuals themselves. "The government is prepared to increase the subsidy next year," Yu Gongbin, a senior ministry official, said on an Internet conference.

The authorities have decided to increase subsidies from central and local governments from a combined 40 yuan to 80 yuan for each individual account, Yu said. In 2002, China launched a pilot phase of a rural cooperative health scheme to help farmers tackle rising health costs. Three provinces were chosen for the program.

By early last year, more than 370 million farmers, about 42 percent of the rural population, were involved in the program. The authorities had said the program would cover the whole of the rural population by 2010.

Should farmers still not be able to cover medical costs after receiving aid from the cooperative fund, the country's medical relief system will offer a hand, Yu said.

Similarly, the urban cooperative health scheme was put on trial in 79 cities this year. It is scheduled to cover half of the country's cities next year and cover all of the urban population by 2010. More is being done to address rising costs, officials added. The consumer price index reached 6.9 percent last month, an 11-year high. To tackle the problem, the government has earmarked 2 billion yuan to raise minimum living standards of the urban poor this year, You Mingchun, a senior ministry official, said.

In addition, since 2003, it has increased its investment in employment programs from 10 billion yuan to 34.5 billion yuan last year. It also invested 4 billion in special employment funds last year to support the development of small and private firms.

Education

PKU Won Top Prizes in National Math Contest in Modeling for Undergraduate Students

(PKU news, 2007-12-20)

National Math Contest in Modeling for Undergraduate Students in Beijing district has drawn its end in recent days. In the competition participated by 11742 teams from 969 universities and institutes nationwide, 11 teams of PKU stood out thanks to their highest performance, and won for PKU three 1st national prizes, one 2nd national prize, six 1st prizes as well as one 2nd prize both for Beijing district.

As one of the biggest nationwide extracurricular activities for college students in science and technology innovation, National Math Contest in Modeling for Undergraduate Students is a comprehensive competition with the aim to improve the students' capabilities in the application of mathematics in real-life problem solving, computer use, and competent written skills. By taking part in the competition, participants can get great enhancement in the creativeness, team work, and spirit of cooperation that couldn't be easily obtained merely in classes and books.

The 11 prize winner teams representing PKU were strictly selected via the "Jiang Zehan Cup" Math Modeling & Computer Application Contest, held by School of Mathematical Sciences under the effective support of PKU Office of Teaching Affairs. Being held for 4 times and with a steadily increasing number of participants, the contest stimulates students' passion for mathematics, and plays a significantly positive role in the enrichment of cultural life and the establishment of idea of "Respect for Science, Pursuit for Knowledge" among students.