

Content

Science News from Chinese Media during the Period of January 2007
Collected and Compiled by the Helmholtz Beijing Office

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Helmholtz with China

China is experiencing a warm winter together with the other countries. Except the only snow right before the Christmas Eve, there has not been a second snow fall in January 2007.

After the Helmholtz-CSC cooperation on student exchange, selection of 50 Chinese students for working in Helmholtz research centres, has been announced to the public, we are receiving daily many calls from university personal offices and also calls and emails from the attracted students. We are convinced, on the one hand our scientists receive good students or young scientists from their knowing partner group in China; on the other hand this programme is also a very good instrument to make Helmholtz Association known to the Chinese science community. It seems to us, we may have very big opportunity to identify 50 very good students, but we could not be sure there are really enough applicants for every individual potential position filed by the Helmholtz scientists.

On the 9th of January, Dr. He, head of the Helmholtz Beijing Office, paid a visit to the Beijing University, under the invitation of Prof. Tian Xiaoli and his friends Dr. Li from MDC. Prof. Tian is an alumnae of MDC, he was doing a PhD under the instruction of Prof. Ganten from 1994-1999. He has just been attracted to Beijing University from the United State. As a well-trained geneticist for big animals like rats and rabbits, he has got an offer “Yangtze Professorship” and almost two million euros of budget to establish a laboratory on molecular medicine and human diseases genetics. His show-up may strengthen the cooperation between his college and MDC and HZI.

On the 17th January, Dr. He went to the Institute of Automation, Chinese Academy of Sciences, for an ICT meeting of EU FP 7. It was informative for all the participants, mostly Chinese scientists, on how to find the recently released call and the right partner in Europe. It was a parallel session of academic activities to commemorate the 10th anniversary of LIAMA, a Sino-French Joint Labor in this institute. On the 18th January, over 200 scientists from China and French participated in the celebrating ceremony. Mr. Shang Yong, Vice Minister of MOST, Mr. Ma Songde, former Vice Minister of MOST, former Institute Director and the French representatives, such as the ambassador, highly praised the cooperation in the past 10 years, during which time over 200 French scientists and students have worked and stayed in LIAMA for over 3 months. They have praised thus LIAMA a Flagship for Sino-European cooperation.

On the 21st Jan. Mrs. M Pauls from AWI arrived in Peking after attending an international conference on ocean research in Qingdao. As she is director of AWI's press department and chairwoman of the Media and Public Promotion Committee of IPY, we arranged a meeting with Mr. Wang Yong and his colleague from the Chinese CAA (Chinese Arctic and Antarctic Administration). They have discussed on schedules of the IPY and special programmes to enhance the public awareness on this important event.

Concerning the upcoming ILC (International Linear Collider) conference in Beijing, we have offered a hand to Mrs. Warmbein from DESY. She is one of the 4 media spokeswomen of ILC. We helped her to figure out the real situation on the Chinese partner side and provided her a list of German journalists in Beijing.

On the afternoon 26th of January, a round-table discussion from the representatives of German academic institutions was held in the German Embassy. Dr. Hack reported on Prof. Mayer-Kramer's China visit and proposed a synergy of these partners for the future cooperation with China. All the participants reported major events in the past or the coming months.

Helmholtz Beijing Representative Office

1 Science News

1.1 Energy

China to import 3rd-generation nuclear technologies from US

(People's Daily, 2007-01-11)

The Commission of Science, Technology and Industry for National Defense confirms that China is expected to build four nuclear-power generating sets with the third-generation nuclear technology imported from the United States, according to a China News Services report.

The US-based Westinghouse and Shaw Group won the bid. China will bring in the AP1000 technical-how of the former to set up a third-generation PWR nuclear power plant, one of the reportedly world-renown third-generation nuclear technologies.

Based on its nuclear energy research and development in the past two-plus decades, China will introduce mature nuclear technologies from overseas to help form its own next-generation technologies and put it into extensive application, said an official with the Commission.

China Develops Bio-fuel Farms

(CRI, 2007-01-12)

China will set up 40,000-hectare farms in the southwest, growing plants that can be used to extract diesel fuel, as part of the search for alternative energies.

The farm will eventually be able to provide 60,000 tons of diesel fuel per year, according to the State Forestry Administration, which on Thursday signed the agreement with China National Petroleum Corporation, the country's largest oil and natural gas producer, to jointly develop the farm.

Jia Zhibang, director of the administration, said the cooperation is a key step for China to explore biological resources, and will help reduce the country's heavy reliance on coal and other fossil fuels.

The farm, to be planted this year, is located in the southwestern provinces of Yunnan and Sichuan, Jia said, adding that the provinces of Hainan and Guizhou are two other ideal locations for growing bio-fuel plants.

Biological diesel oil is not only a solution to fuel shortages, it is both efficient and environment-friendly, experts have said.

China consumed energy equivalent to 2.23 billion tons of coal in 2005, while the country's domestic energy output was only 2.06 billion tons. The government has said it will encourage the development of renewable energies such as wind power, solar energy and biological fuels during its 11th Five-Year (2006-2010) Plan period.

Capacity of China's straw-fueled power plants reaches 1.2 mln kw

(Xinhua Net, 2007-01-16)

Thirty-four straw-burning power plants were being built at the end of 2006 in China's rural areas with a total installed capacity of 1.2 million kw to help local farmers generate extra income.

Among them, three plants have already begun operations in Shandong, Jiangsu and Hebei provinces, according to China's National Development and Reform Commission (NDRC).

Suqian plant, in Jiangsu Province, has a capacity of 240,000 kw and is capable of generating 156 million

kwh per year, supplying 132 million kwh to the national power grid. It can consume 170,000 tons to 180,000 tons of straw annually, which is equivalent to 98,000 tons of standard coal.

Straw is relatively clean fuel. A biomass power plant of 25,000kw can generate 100,000 tons less carbon dioxide every year compared with the coal burning power plant of the same capacity, said Jiang Gaoming, chief researcher of the Institute of Botany of the Chinese Academy of Sciences.

Coal burning also generates a lot of sulfur dioxide, which is the main cause of acid rain. Straw contains one tenth of the amount of sulfur in coal.

Thirty percent of burnt coal is waste, which is generally harmful to the environment, while biomass burning generates just two percent and can be used as fertilizer after proper processing, said Jiang.

Straw burning power industry will grow faster in China with supportive policies, development of new technologies and the formation of a raw material collection and storage systems, according to the NDRC. Electricity generated from straw has a preferential price of 0.25 yuan per kwh higher than coal-fueled power when sold to the state grid. In addition, straw power plants enjoy a series of preferential policies including tax exemption.

The development of a straw-burning electricity industry also helps local economies.

It is estimated that a straw power station with a capacity of 25,000 kw would consume 200,000 tons of straw a year. Calculated at a purchase price of 200 yuan (25 U.S. dollars) per ton, it would make 40 million yuan (five million U.S. dollars) for the local farmers, benefiting nearly 50,000 rural households.

Yang Desheng, a farmer near the Suqian plant, said the crops in his field would produce 7.2 tons of straw a year. He could only burn it down before, but now he sold it, earning 1,440 yuan (180 U.S. dollars).

China has more than 600 million tons of straw produced every year. It also has 19 billion tons of forest biomass, of which 300 million tons can be utilized as energy resources.

By the end of 2006, China's installed power generating capacity had reached 622 million kw, of which 484 million kw or 77 percent was fueled by coal, a major source of pollution.

Under China's development plan, by the end of the 11th Five-Year Plan (2006-2010), the overall capacity will reach 800 million kw, of which 35 percent would be "clean power" generated from hydropower, nuclear energy and other forms of new energy including straw-fueled electricity.

Chinese scientists conduct more tests on thermonuclear fusion reactor (CAS, 2007-01-16)

Chinese scientists have begun a new round of tests on the reliability of the experimental thermonuclear fusion reactor, nicknamed "the artificial sun".

The Experimental Advanced Superconducting Tokamak (EAST) fusion reactor, which replicates the energy generating process of the sun, was tested at the Institute of Plasma Physics under the Chinese Academy of Sciences (CAS) in Hefei, capital of east China's Anhui Province. The reactor was first tested in September 2006. Since then scientists have made adjustments to improve results.

"The new tests show the reactor is very reliable, and we can repeat the experiments," said Wu Songtao, deputy director of the institute. This new round of tests will continue till Feb. 10.

During the experiment, deuterium and tritium atoms were forced together at a temperature of 100 million degrees Celsius. At that temperature, the super heated plasma, which is neither a gas, a liquid nor a solid, should begin to give off its own energy, scientists explained.

The device is planned to eventually create a plasma lasting 1,000 consecutive seconds, the longest a fusion

reactor has ever run.

During the first round of experiments, the reactor created a plasma lasting nearly five seconds and generating an electrical current of 500 kiloamperes.

"With more adjustments to the reactor and more experiments, we will get longer plasma at a higher temperature," Wu said.

The EAST is an upgrade of China's first-generation Tokamak device and the first of its kind in operation in the world, said Chinese scientists.

The Institute of Plasma Physics spent eight years and 200 million yuan (25 million U.S. dollars) on building the experimental reactor. Compared with similar devices in other countries, EAST cost the least money and time in construction and was the first in operation

Some experts have cast doubt on whether it can produce more energy than it consumes, the main obstacle to making fusion commercially viable.

Wan Yuanxi, general manager of EAST, said it had been proved that the energy input-output ratio of a fusion reactor could reach 1:1.25. With the development of the technology, the ratio was expected to increase to 1:50 in the future. The main purpose of EAST was to prove that the reactor can produce consecutive and stable plasma, Wan said.

Unlike traditional nuclear fission reactors, which split atoms to create energy and produce dangerous radioactive waste, the EAST uses nuclear fusion to compress atoms at extremely high temperatures to generate energy that would produce very little pollution.

Scientists theorize that a fully functional fusion reactor would provide cheaper, safer, cleaner and endless energy and reduce the world's dependence on fossil fuels.

The EAST is part of the International Thermonuclear Experimental Reactor (ITER), which is the largest international program dedicated to experiments in thermonuclear fusion. "The EAST is the only prototype nearest to the ITER and, thus, it can serve ITER advanced research in terms of engineering technology and physics," said Wan.

In 2003, China joined the 4.6-billion-euro ITER which was originally initiated by the United States and Russia. The first operation of ITER might be in 2016. But the most optimistic estimation on first commercialization of the ITER said it needs at least half a century.

Nuke power security a key concern

(People's Daily, 2007-01-17)

New efforts will be made to ensure nuclear and radioactive security now that nuclear power generation is growing and radioactive treatments are widely used in medical service.

Zhou Shengxian, Minister of the State Environmental Protection Administration (SEPA), told a high-level conference yesterday that the central government had allocated a budget of 40 million yuan (US\$5.12 million) to monitor possible nuclear and radioactive pollution.

The significance of nuclear and radioactive security was underscored by Zhou's mention of China's emergency surveillance and evaluation following the nuclear test last October in neighbouring Democratic People's Republic of Korea.

Nuclear and radioactive security is defined as regular inspection of nuclear use and operations, and effective response in emergencies.

SEPA last year set up six nuclear and radioactive security-related monitoring centers based in Beijing and

Shanghai, Guangdong and Sichuan provinces, and the northeast and northwest regions.

But nuclear power generation is expected to grow in leaps and bounds in the next few years, Zhou noted.

Nuclear power accounts for 2 percent of China's energy consumption, with a generation capacity of nearly 8 million kilowatts in 2006.

But the targets are to reach 12 million kilowatts by 2010 and 40 million kilowatts by 2020. SEPA will strengthen supervision of nuclear power plants both under construction and in operation, Zhou said.

In medical and other services, environmental officials admit that some radioactive materials are not properly disposed of, posing a potential threat to public health.

Zhou said that 2007 will be the last year of a transition in which the handling of radioactive materials used by hospitals will be done by the environmental, rather than medical, authorities.

In a related development, China Daily has learned that Li Ganjie, former director of the SEPA nuclear and radioactive security department, was promoted as the administration's youngest deputy minister at the end of 2006.

China's experimental thermonuclear fusion reactor half-done

(Xinhua Net, 2007-01-22)

Chinese scientists announced they have more than doubled the temperature in the Chengdu-based experimental thermonuclear fusion reactor to 55 million degrees Celcius -- still barely half the temperature needed to provide energy.

The test was conducted in Southwestern Research Institute of Physics under the Chinese Academy of Sciences in Chengdu, capital of Sichuan Province, last December.

Thermonuclear fusion requires a temperature of over 100 million degrees Celsius to produce energy, said scientists. After that temperature, deuterium and tritium atoms are forced together to form a super-heated plasma which should begin to give off its own energy, scientists explain.

"At present, Europe and the United States have been able to acquire plasma at that temperature," said Liu Yong, director of the Center for Fusion Science with the institute.

Fusion reaction is an attempt to replicate the energy generating process of the sun.

China has two major experimental fusion devices. EAST (experimental advanced super conducting Tokamak) is located in Hefei, capital of east China's Anhui Province, while the other is the HL-2A experimental thermonuclear fusion reactor in Chengdu. EAST is China's upgrade of the first-generation Tokamak reactor, said Chinese scientists.

In 2003, China joined the 4.6-billion-euro ITER (International Thermonuclear Experimental Reactor), the largest international program dedicated to experiments in thermonuclear fusion. About 2,000 Chinese researchers are engaged in the study of thermonuclear fusion.

China failed to reach energy saving goal in 1st year

(China News, 2006-01-26)

China failed to reach its energy saving goal in the first year of its five-year energy conservation program. Only six Chinese cities, including Beijing and Tianjin, reached their goals by reducing energy consumption by 4% for each 10,000-yuan GDP growth, Chinese official media reported.

Chinese government did not say how far energy conservation fell behind its target goal last year.

In March, 2006, China released its five-year energy conservation goal for the eleventh five-year period at

the National People's Congress, China's top legislature. According to this proposal, China aims to reduce energy consumption by 20% for every 10,000 yuan of its GDP growth within the five years.

However, the rapidly growing economy will make it difficult for China to achieve the energy saving goal, according to Ma Kai, Minister of the National Development and Reform Commission (NDRC), in a speech last Friday.

As the state's governing body for investment and energy, NDRC estimates that Chinese GDP growth rate might reach 10.5% in 2006.

Despite this, Fang Weizhong, president of the China Macroeconomics Society, said in a report that it is still possible for China to achieve the goal. He said that China can save much energy by upgrading technology, especially in the thermal power plants.

Construction begins on new Qinshan nuclear power plant

(Xinhua Net, 2007-01-31)

Construction of the fourth generating unit in the second phase of China's Qinshan nuclear power plant is underway in Haiyan, east China's Zhejiang Province.

Four pressurized water reactors, each with an installed capacity of 650,000 kw and a life span of 40 years, will have been installed by the time the second phase is completed in 2011, said sources with Qinshan Nuclear Power Company.

Currently, two of the four planned generating units are in operation as work continues on the third generating unit. After the completion of the second phase expansion project, Qinshan nuclear power plant will be capable of generating 18 billion to 20 billion kw/hours of electricity a year.

Qinshan Nuclear Power Plant, situated on the northern coast of Hangzhou Bay, is the first nuclear power plant on the Chinese mainland to be built independently by Chinese engineers.

Construction on the plant began in 1985 and the plant was built with a 300,000-kw generating facility and a life span of 30 years. The plant started generating power in 1991.

1.2 Earth and Environment

China sees record high temperature in 2006

(China News, 2007-01-01)

China not only experienced the hottest summer and warmest autumn, but also witnessed the record high yearly temperature in 2006 in 55 years.

Statistics released Saturday (Dec.30) by the China Meteorological Administration show that including China, the whole globe has tended to be warmer than before.

According to experts, the average temperature in China in 2006 hit 10 degrees centigrade, 1 degree higher than average, and the highest since 1951.

Moreover, the last ten summers in China saw consecutive high temperatures, unusual in 50 years.

It is learned that strong sub-tropical high pressure is the main reason for China's high temperature.

Glaciers on Qinghai-Tibet Plateau Melting away

(CRI, 2007-01-05)

Glaciers on the roof of the world -- China's Qinghai-Tibet Plateau -- are beating a dramatic retreat. In the past three decades, they have shrunk by 131.4 square kilometers annually, according to the latest report from the China Geological Survey Bureau.

What that means is that an area of glacier equivalent to twice the size of the Beijing downtown area disappears every year.

A further 13,000 square kilometers of glacier -- nearly 28 percent of the total glacier area and equivalent to twice the area of Shanghai Municipality -- will disappear by 2050 if no protective measures are taken, the report said.

Glaciers on the outskirts of the plateau have already decreased by 10 percent and those in the hinterland have shrunk by five percent. Researchers said the melting of the glaciers has brought abundant water to the rivers, lakes and wetlands in the plateau and its surrounding areas in the short term.

"But as the glacier shrinkage accelerates, the plateau's total water storage will decrease rapidly," said Fang Hongbin, a remote sensing expert.

Experts point out that since the plateau supplies the headstreams of many of the major rivers in East, Southeast and South Asia, the decrease of water storage in the region will have a significant impact on the economic and social development of China as well as neighboring countries.

The Qinghai-Tibet Plateau in western and southwestern China is the highest plateau in the world. With an elevation of 3,000-5,000 meters, it is known as the "roof of the world".

It is estimated that the Qinghai-Tibet Plateau has over 36,000 glaciers with an area of 49,873 square kilometers. About 84 percent of the country's total glaciers are located on the plateau.

The report said the plateau's 88,715 square kilometers of wetlands are also dwindling rapidly and the plateau is suffering from serious desertification.

"Environmental change on the Qinghai-Tibet Plateau is closely connected with crustal movements. But human activities also contribute to the deterioration of the environment," Fang said.

Researchers said they hoped their investigation would provide the government with valuable input for regional development plans and environmental protection programs.

Tibet's Record Temperatures Spark Climate Change Fears

(CRI, 2007-01-07)



Tibetan grasslands on the outskirts of Nagqu, some 4,500 meters above sea level, north of Lhasa on the immense Tibetan plateau. Photo: AFP/File/Frederic J. Brown

BEIJING (AFP) - Temperatures in rugged Tibet have hit record highs in recent days, China's state press has reported, as a scientific survey warned of the impact of global warming in the Himalayan region.

Friday's temperature in the Qamdo area of eastern Tibet was 21.8 degrees Celsius (71 degrees Fahrenheit), 1.7 degrees higher than the previous record set for the same day in 1996, Xinhua news agency reported.

In Dengqen county, also in eastern Tibet, the mercury reached 16.6 degrees Celsius on Thursday, 2.5 degrees higher than the previous record for the same day set in 2001, it said. Eight other places across the region also recorded record-breaking daily temperatures over the past

few days, it added. Meteorological data in the Himalayan region began to be collected in 1970.

China's Tibet plateau, seen as a barometer of world climate conditions, is experiencing accelerating glacial melt and other ecological change, the leading People's Daily reported Friday.

The mountainous region's glaciers have been melting at an average rate of 131.4 square kilometers (50 square miles) per year over the past 30 years, the paper said, citing a recent geological study.

Researchers who conducted the survey said that even if global warming did not worsen, the area's glaciers would be reduced by nearly a third by 2050 and up to half by 2090, at the current rate.

The survey, conducted by the Remote Sensing Department of the China Aero Geophysical Survey, also found a rapidly rising snow line, shrinking wetlands, and increased desertification compared with 30 years ago, the paper said. These problems will worsen as the glacial melt -- which has accelerated in recent years -- continues, further depleting the area's water resources, the researchers predicted.

The Tibet plateau, which includes the Chinese portion of the Himalayas, accounts for nearly one quarter of China's landmass, stretching from Tibet to the adjacent provinces of Qinghai, Sichuan and Yunnan.

A separate national assessment released last week on the impact of climate change said temperatures in China would rise significantly in coming decades, water shortages would worsen, and extreme weather events would intensify.

Aged forests could still act as carbon sinks (CAS, 2007-01-08)



Old-growth forests are traditionally negligible as carbon sinks, but CAS scientists recently reported that the buildup of atmospheric carbon in the top-soils of 400-year-old forests in southern China have increased at an unexpectedly high rate up to nearly 68% from 1979 to 2003.

According to classic ecological theories, the carbon accumulation capability of established forests is insignificant because carbon uptake was thought to be balanced by respiration. However, after a continuous observation the carbon stock dynamics over the past 25 years at the

Dinghushan Biosphere Reserve in Guangdong Province, southern China, ZHOU Guoyi and his colleagues from the CAS South China Botanical Garden and the US Geological Survey have arrived at different conclusions, posing challenges to the prevailing belief.

As reported in the Dec. 1 issue of *Science*, the researchers made statistical analyses on 230 composite soil samples, and surprisingly found that the carbon accumulated in the 20-cm-thick topsoil layer increased between 1979 and 2003 from about 1.4% to 2.35%, with an average rate of 0.61 ton per hectare per year.

The discovery has aroused close attentions of ecologists as well as wide interests from the media and global readers, since understanding the locations and driving forces of carbon sources and sinks is critical for the prediction and management of the global carbon cycle and ultimately the behavior of the Earth's climate system.

Although scientists are not yet clear how the increase occurred, they speculate that below-ground processes, such as altered geochemistry or microbe behavior, may be credited, and hence made suggestions on further studies of the complex responses and adaptation of belowground system to global environment change. The

researchers also advocated for a new, non-equilibrium conceptual framework for soil carbon dynamics.

The world climate has posed grave challenges to human inhabitants ever since the beginning of industrialization and urbanization. The over-emission of carbon dioxide into the Earth's atmosphere has led to a series of environmental problems headed by global warming. Despite the importance of finding out the carbon sources, sinks and the circulation driving force, it remains a headache for researchers around the world to unveil the enormous "missing sink" hidden within the Earth's ecosystem.

Studies shed light on snow-ice system in western China

(CAS, 2007-01-08)

"The modern process of snow and ice in western China," a key project accomplished by the Cold and Arid Regions Environmental and Engineering Research Institute (CAREERI) under CAS, passed the scrutiny of an expert panel in Lanzhou, Gansu Province on Dec.19.

Organized by the S&T Department of Gansu Provincial Government, the appraisal was chaired by the Lanzhou Branch of the Academy. After hearing reports from the research group and making a close examination on the technical data, the panel considered the project a success in addressing such core issues as the evolution of the snow and ice resources in western China over the past decades and its development tendencies in the coming 50 years.

The multi-area and multi-level studies in the project have reaped a number of innovative fruits. According to the report, the duration for fresh snow to transform into fine firn is about 41-47 months in the headwaters of the Urumqi River (HUR), with melting water as a dominant factor on the time scale and total volume of the transformation. The d18O recordings of the accumulation zone of the Glacier No. 1 demonstrate a positive correlation to the average temperature of the summer half-year. Analyses on the relationship between aerosol and soluble ions in surface snow uncover the environmental evolution regulations in HUR atmosphere. Also, quantitative studies on the trend of glacier evolution indicate that the total area of glacier in west China decreased by 18.1% since the Little Ice Age to the later half of the 20th century, and the retreat of nearly four fifths of the entire glaciers has led to a reduction to some 4.5% in recent 50 years.

The researchers say global warming has led to a decrease in the area and reserves but an increase in the runoff-volume of the glaciers in western China. For instance, the glacier in Tarim River Basin has lessened up to more than 1,300 square km by area and 87 cubic km by reserves in 1999 compared to 1963. As for snow accumulation, the report shows the Qinghai-Tibetan Plateau has seen an augmentation in snow reserves despite the worldwide snow shrinkage, while the snow in Tianshan Mountains keeps a general balance in total volume over the recent years.

China to build 3rd research station at South Pole

(Xinhua Net, 2007-01-08)

China will start building a new scientific research station at the South Pole late this year, according to E Dongchen, director of the Chinese Antarctic Center of Surveying and Mapping.

It will be China's third South Pole research station.

The construction is part of China's contribution to International Polar Year (IPY) 2007/2008 which runs from March 1, 2007, to March 1, 2008.

The observatory will be located at the icecap peak known as Dome A, 4,039 meters above sea level in Antarctica. The observatory will be used for scientific research in summer but will eventually be developed

into a permanent station capable of accommodating scientific research all year round, said Mr. E.

The country has been preparing the project for some time, according to E.

Chinese scientific workers climbed Dome A in January 2005 and fixed the site of the observatory. Specialists from Wuhan University, with which the Chinese Antarctic Center of Surveying and Mapping is affiliated, produced a detailed map for the facility in April 2005.

The name of the new research station is still undecided.

China has launched 22 Antarctic expeditions since 1984 and built two permanent exploration stations named Changcheng (Great Wall) and Zhongshan.

It now possesses nearly 10,000 Antarctic aerolites including the priceless Lunar and Martian aerolites, the third largest collection in the world. China has also carried out two arctic expeditions and built the Huanghe (Yellow River) exploration station in the Arctic in July 2004.

IPY 2007-2008, to be launched by the International Council for Science (ICSU) in conjunction with the World Meteorological Organization (WMO), is the fourth since the first joint polar expedition was organized in 1882/1883. It will be the first time China has participated in IPY activities.

Ocean No. 1 Leaves for 19th Mission (CRI, 2007-01-08)



Dayang Yihao (Ocean No. 1), a Chinese research vessel, left Qingdao for its 19th ocean tour on Monday morning.

China's most advanced research vessel, which completed a global research tour in 2005, will sail across the Indian Ocean and the Pacific Ocean on its 220-day mission.

Over 130 people will participate in the mission divided into six segments that ends on August 15.

The China's most advanced research vessel, Dayang Yihao (Ocean No. 1)

Scientists will specifically pay attention to the investigation of sea-floor hydrothermal activity during the tour.

Scientists provide suggestions on national strategy for marine engineering (CAS, 2007-01-11)

The 21st century will be a new era for the ocean exploration and utilization, which have a critical bearing on a nation's security, rights and interests. With the changes of the international situation and the increase in China's comprehensive national strength, it becomes more and more important and urgent for this country to develop its own maritime programs. Thus issues of marine science, technology and engineering have been put on the agendas of China's long- and medium-term national schemes for development.

Under the theme of "the National Strategy on Marine Science, Technology and Engineering," the 285th session of the Xiangshan Science Conferences was convened from October 10 to 12, 2006 in Beijing. The three-day meeting was jointly hosted by four executive chairs: Profs. Allen T. Chwang from Sun Yat-sen University, QIU Dawei from the Dalian University of Technology, Prof. HE Yousheng from Shanghai Jiao Tong University and LI Jiachun from the CAS Institute of Mechanics. The major topics under discussion were: S&T problems in the deep-ocean engineering and marine resources exploitation, the development and utilization of marine space, and the marine transportation system and its security.

China is a marine power rich in oceanic resources, including three-million-square-kilometers sea areas under its jurisdiction, a mainland coastline as long as 18,000km, and more than 5,000 islands, each with an area more than 500 square kilometers, noted Prof. Chwang in his keynote overview report entitled "China's National Strategy on Marine Science, Technology and Engineering."

In the 21st century, China has to face a variety of severe challenges regarding national security, energy sources and water resources, the sea transportation routes, maritime safety and marine environment. In the long-term and medium plans for national development, it has been made clear that priority will be given to such realms as efficient exploitation of marine resources, seawater desalinization, maritime ecology and environmental protection, three-dimensional monitoring technology of the marine setting, development of the natural gas hydrate.

The problem facing China's ocean engineering development, according to Prof. Chwang, include backward science, technology and management level, as well as inadequate investment and competent professionals in ocean science and technology. He suggested formulating strategies which gives priorities to the development of marine science, technology and engineering.

Other keynote reports were "Some Mechanic Problems from Oceanic Exploitation and Engineering Practice" (by LI Jiachun), "Comprehensive Development & Utilization of China's Offshore Marine Space Resources" (by QIU Dahong), "China's Engineering Construction for Marine Hydrocarbon Exploitation: Retrospect & Prospective" (by JIANG Xizhao) and "Some Common Problems on Hydraulic Dynamics Shared by the Development of Deep-Sea Engineering Installations" (by LIAO Guoping). A dozen of other scholars also gave talks on various issues in the field.

After hot discussions, the following consensus was reached: As a national strategic task, the exploitation of the deep-sea hydrocarbon trove in the South China Sea is challenged by a series of S&T problems and their solution requires trans-disciplinary coordination and concerted efforts. In this way, China's marine petroleum industry will see a continuous uplift in its S&T level.

The deep-sea engineering 300-3,000m beneath the sea level is the research focus for China's marine science community and the "hot point" of the related industrial departments. The core of these problems lies in the operational safety for deepwater platforms. A lot of work remains to be done in the designing codes for such a platform in China. As developing such codes to fit China's specific requirement is a complicated system engineering project, work should be started soon.

The theory and technology concerning maritime traffic safety system should be studied by introducing new technologies such as information, control and forecasting, in a bid to effectively deal with hidden risks and greatly improve the situation.

Prof. Chwang made a summary of the suggestions aired by the participants:

1. A national commission for marine development should be established under the leadership of a vice premier or a State councilor, which will be held responsible for coordinating the development and utilization of the marine spaces.
2. A research project on key S&T problems in exploitation of the off-shore resources and the guarantee of territorial waters should be initiated as soon as possible.
3. A certain number of national marine engineering centers should be inaugurated at the rim of the Bohai Bay, in the Yangtze estuary or the Pearl River delta in addition to the lakeside vicinities in central or western China.
4. Learning from the experience of Brazil or ROK, investment, domestic or overseas, should be introduced

into our country's marine treasure development and research through policy guidance and legislative enactment so that some key marine engineering expertise might be developed with the acquirement of our own proprietary patented rights or licenses.

7,000-m bathyscaphe to be tested in Qingdao

(China News, 2007-01-17)

China is selecting pilots for its first 7,000-m bathyscaphe, which will be tested in Qingdao in the second half of 2007.

The hydraulic pressure upon a bathyscaphe will increase by 10 atm when it dives every 100 m deeper, thus the bathyscaphe must be able to hold 1,000 atm to penetrate the depth of 10,000 meters.

The bathyscaphe to be tested in Qingdao is designed by the No. 702 Institute of China Shipbuilding Industry Corporation. This 8-m-long, 3.4-m-wide and 3-m-tall ellipsoid bathyscaphe is made of special titanium alloy, capable of holding 710 tons of extra weight even at 7,000 m below water, which means that it will be able to reach 99.8% of the seafloors in the world. It will take it about 5 hours to dive to 7,000 m, and the entire operation can be as long as 12 hours.

The bathyscaphe will be able to carry one pilot and two researchers at a time, and it will be able to grasp 75 kg of mineral samples with its two manipulators.

Currently, only the US, Japan, France and Russia are able to build bathyscaphe, but none of their bathyscaphes can dive deeper than 6,500 m.

It can be estimated that the new bathyscaphe will unfold a brand new chapter in the history of man's oceanic exploration, especially in the fields of resource prospecting, hydrothermal sulfide inspection, and oceanic biological and geological inspections.

China sets up a national panel of expert on climate change

(CAS, 2007-01-18)



In response to a suggestion made by eight CAS members, China established on January 12 in Beijing a national panel of experts on climate changes.

In June 2005, eight CAS members, namely YE Duzheng, LIU Dongsheng, SUN Shu, SUN Honglie, CHAO Jiping, HE Zuoxiu, WU Guoxiong and QIN Dahe, jointly submitted a suggestion to the central government, urging for the establishment of a special panel of experts on climate changes. Before long, China

Meteorological Administration (CMA) was asked by the central authorities to organize the panel.

According to CMA President QIN Dahe, the new panel is a trans-departmental and inter-disciplinary body to provide scientific consultation and relevant service for the central government's decision-making procedures in this field so that the government-issued policies may be formulated in a scientific, democratized and legalized way. Based on this, it is to upgrade China's responsive capability in this regard.

The panel is made up of 12 renowned Chinese scientists. Co-chaired by SUN Honglie, DING Yihui, HE Jiankun, its membership also includes CHAO Jiping, LANG Siwei, LI Lierong, LIN Erda, PAN Jiahua, WU Guoxiong, YIN Gai, JIANG Youxu and ZHOU Dadi. They are from CAS, CMA, Tsinghua University, the State Bureau of Oceanography, China Academy of Architectural Science, the Ministry of Land & Resources,

Chinese Academy of Agricultural Sciences, Chinese Academy of Social Sciences, National Bureau for Environmental Protection, Chinese Academy of Forestry and the State Development & Reform Commission.

As the fourth Assessment Report "Climate Change 2007" by the Intergovernmental Panel for Climate Changes (IPCC) is coming out during the first half of this year, the experts suggest, the newly inaugurated panel set up taskforces on the three topics of climate change science, their influences & adaptation, and climate change mitigation. They are expected to make an all-round analysis of the main conclusions given by the IPCC report, their impacts and suggestions of possible measures China could adopt to address the issue.

Remarkable Result Achieved in Sharing Scientific Data of Water Resources

(CRI, 2007-01-21)

Under the guidance and support of the National Scientific Data Sharing Project, the 2003 and 2004 pilot projects of sharing scientific data of hydrology and water resources, undertaken jointly by China Institute of Water Resources and Hydropower Research and Bureau of Hydrology, Ministry of Water Resources, achieved remarkable results, preliminarily setting up the Data Sharing Center of China Water Resources and sharing scientific data of water resources regarding hydrology, water resources, water environment, water disasters and water-saving irrigation of major state hydrological stations.

On-line sharing services of the scientific data of water resources were carried out through the portal website of water resources data sharing (<http://www.waterdata.cn>). During implementation of scientific data sharing in 2004, sharing services for the shared data set of a large quantity of water resources data oriented to scientific research were provided through the Data Sharing Center of China Water Resources.

China Establishes Inter-Agency Think Tank to Brace for Climate Change

(CRI, 2006-01-22)

China has set up a think tank on climate change adding to its efforts to brace for potential extreme weather, according to the China Meteorological Administration.

Qin Dahe, director of the administration, said the think tank is designed to offer advice and devise strategies and regulations to tackle climate change. The think tank is to be headed by Sun Honglie from Chinese Academy of Sciences, Qin said China is following other countries including the United States, the United Kingdom, and Canada which have set up similar think tanks and have put climate change on their lists of national security threats.

The 12 members of the think tank are from 11 government agencies and research institutes including the State Environmental Protection Administration, the National Development and Reform Committee, and the Chinese Academy of Social Sciences.

Qin said the inter-agency committee will help the nation reduce the death toll and property loss from extreme weather caused by climate change.

Extreme weather in China, including typhoons, floods and droughts claimed 2,704 lives and inflicted economic losses of 212 billion yuan last year.

Dong Wenjie, director of the administration's climate center, earlier predicted extreme weather in 2007 could be worse than normal. More frequent typhoons, floods, storms, droughts and heat waves are possible, he said.

Strategic Seminar on Earth Observation and Navigation Held in Beijing**(MOST, 2007-01-23)**

Recently, the Department of High and New Technology Development and Industrialization of MOST held a strategic seminar on the technology of earth observation and navigation in Beijing. The expert panel of this domain delivered the strategic research report to the experts and leaders present and solicited their advice.

The Department of High and New Technology Development and Industrialization organized the expert panel to draft this strategic research report for the Eleventh Five-year Plan period. The attendants conducted sufficient discussion into the report and put forward many constructive suggestions. They thought that this report is accurate, elaborate, well organized and demands-oriented.

In light of general deployment of MOST, the Department of High and New Technology Development and Industrialization will organize the expert panel to further perfect the report in accordance with the suggestions of the attendants and turn the report into a guidance document for the work of this domain in the Eleventh Five-year Plan period.

Development of plant biology is rapid, but facing challenges, say experts**(CAS, 2007-01-24)**

The rapid development of plant biology in China has received much attention from the international community. China's plant biology research enterprise is more productive and internationally connected today than ever before, comments Prof. Xing Wang Deng from the Department of Molecular, Cellular, and Developmental Biology, Yale University.

This trend is perhaps most apparent in China's growing representation in international journals, observes Deng and his colleagues in a recent article published by *The Plant Cell*. Overall, the number of annual publications by plant scientists of China's mainland in 14 important plant-specific and general scientific journals has increased dramatically over the last 15 years, from two publications in 1991 to 61 in 2005.

This progress is given credit to broader changes in China's research environment over the past two decades. China's extensive reform program in the late 1970s focused on revitalizing the nation's science and technology by increasing research funding and reforming institutional arrangements. With broad-based support from the government, many institutions have steadily hired new personnel and upgraded equipment and facilities. A growing number of these recruits are returning scientists trained abroad and have brought with them expertise and valuable overseas connections. These stronger international ties and China's internal experimentation with new institutional models are catalyzing fundamental changes in China's research environment.

However, China's modern plant biology research is facing challenges, says the article. In terms of research funding and output, China still lags behind many of the advanced industrialized countries. When publication records for China and the U.S. are compared, the gap in output becomes clear. In *The Plant Cell*, China published 13 articles in the first 11 months of 2006, while the figure for U.S. was 60. The present evaluation systems for research proposals and institutional/individual performance are in need of significant modernization.

The independent peer review model widely used in developed countries needs to be implemented at every level of the scientific evaluation system in China, suggests the article, adding a more patient and balanced evaluation system on the institutional and personal productivity would likely promote risk-taking in the

search for major scientific breakthroughs in the long run.

CAS institutes join forces to set up a lab for meso-scale maritime observation

(CAS, 2007-01-24)

On January 18, three CAS institutes, namely, the South China Sea Institute of Oceanology, the Institute of Acoustics and the Shenyang Institute of Automation, signed an agreement to jointly set up a laboratory for meso-scale oceanographical observation. CAS Vice President LI Jiayang and President of the CAS Guangzhou Branch CHEN Yong were present to witness the event.

The three sides agree that efforts will be made, by pooling their resources, to address common and hot issues in the real-time observation in the fields of meso-scale oceanology and hydro-acoustics. Starting from jointly building a new scientific vessel for maritime studies, the new lab will carry out real-time and simultaneous surveys by taking advantages of interdisciplinary studies in major sea areas and sections. It will also establish a long-time series monitoring system by sharing ocean observation platforms such as buoy systems, shore-based stations, and underwater vehicles.

Over the past years, the institutes have maintained a long-time partnership and carried out a number of national research tasks including underwater robots, measurement technology for ocean current profiles, marine optical buoy technology, and ship-borne ocean optical profiling system. Since the 1990s, the South China Sea Institute of Oceanology and Institute of Acoustics have jointly conducted several large-scale scientific experiments, such as a comprehensive exploration in the waters of Nansha Islands. They have also participated in the Asian Seas International Acoustics Experiment.

China finished digital chart of South China Sea

(China News, 2007-01-24)

China has equipped many of its vessels with the newly completed 1:1,000,000 digital sea chart of the South China Sea.

The digital chart, made with updated technology, is the symbol of China's development in computerization of charting, not to mention that it will help Chinese vessels in various aspects.

Besides, the new digital chart is compatible with all the mainstream navigation systems and radars, thus it can be applied for non-military uses such as oceanic inspection, environmental monitoring, oil probe, etc.

CAS sets up a key lab for sustainable utilization of marine bio-resources

(CAS, 2007-01-26)

After a scrutiny of a panel of experts, the establishment of the Key Laboratory of Marine Bio-resources Sustainable Utilization has recently been approved by CAS. Affiliated to the South China Sea Institute of Oceanology, the new lab will be focused on marine bio-resources, biotechnology for sea water culture and marine drugs. Over the past years, the institute has recruited and trained a group of young and middle-aged research professionals and conducted a number of major research tasks and scored high-level achievements in the fields.

China's Second Largest Lake at Risk of Environmental Decay

(CRI, 2006-01-27)

On the shores of Hunan Province's Dongting Lake -- the second largest freshwater lake in China -- lies the

village of Qingshanyuan. As all too commonly found in rapidly developing China, industrial plants surround the lake discharging wastewater and emitting toxic gases into the air, regardless of the environmental consequences.

In 2000, the inhabitants of Qingshanyuan collectively set up a cage aquaculture business on the lake, despite the threat posed by neighboring paper mills and chemical fertilizer plants to the success of their scheme.

Two years after they started out on their 'fish farm' enterprise, the villagers' business began to feel the impacts of the lake's pollution. In 2002, the villagers' entire stock of fish died from water poisoning -- more died in 2003.

Reflecting on the disastrous experience, the village's Communist Party chief Tang Daiqin remarked, "We had invested a lot into our business -- it was terrible."

Development vs. the Environment

Ancient Chinese first settled around Dongting Lake during the Qin and Han Dynasties. At that time, Dongting was the largest lake in China, however due to a large-scale land reclamation movement in the 1950s, the lake has shrank in size by more than a half -- from 6,500 square kilometers to less than 2,700 square kilometers. Farms were erected and gradually, the newly reclaimed land developed into villages, towns, or even districts.

Due to its abundance of reed and fast-growing trees -- coupled with the accessibility of water transportation -- paper mills were established around the lake. Every day, transport boats pass in and out of Dongting, carrying materials to factories on the lakeside.

The experience of the villagers in Qingshanyuan is indicative of the situation across Dongting Lake. 54 year-old Luo Aifu has been driving a transport vessel for more than three decades, delivering reed from the east of the lake to the town of Jiangjiazui on the western shore where Qingshanyuan Village is situated. Luo mentioned that on the route he takes, you can see paper mills scattered all along the shoreline dumping waste into the lake.

"More than 10 years ago, the water in the lake was so clear that I could drink during my trip ?C but there is no clear water now," Luo remarked.

Indeed, Dongting Lake of old was famed in China for its scenic beauty -- clear water, blue skies and its luscious green setting -- frequently featuring in Chinese poetry and paintings. Today, the water of Dongting is distinctly black in colour, the landscape is blighted with industrial plants and the skies bellow with smoke.

Jiangjiazui, where Luo's delivery ends up, was once the industrial center of Hanshou County, enjoying a prosperous period in the 1970s thanks to its vast number of paper mills and chemical fertilizer plants. However, as Jiangjiazui entered into its own little Industrial Revolution, villagers started to notice environmental degradation around the lake.

Peng Pingbo, a representative from the West Dongting Nature Reserve (WDNR) commented, "In Jiangjiazui, 4.8 kilometers along the lakeside and within 100 meters of the bank, the water is all black with nothing living in it -- no living plants exist on the bank less than one meter above the shoreline."

Jiang Yong, vice director of the East Dongting Nature Reserve (EDNR) told China Features that, as a result of the deterioration of Dongting's water, "Some people living at the lakeside are now experiencing water shortages." Jiang added that he believes the situation to be worse than ever.

Cause and effect

Due to the growing construction of dams on the upper reaches of the Yangtze River and its tributaries, along with a long-lasting drought, the amount of water flowing into Dongting Lake in the summer of 2006 was considerably lower than usual. As a result, the concentration of pollutants in the lake has intensified.

Nevertheless, the main offenders are the growing number of industrial plants that line the lakes shores.

Liu Shuai, a senior official with the Hunan Committee for Environmental and Resource Protection under the provincial people's congress, told China Features that 101 papermaking factories are now in operation near the lake. Every year, factories clandestinely discharge more than 100 million tons of wastewater into the lake without meeting environmental protection standards.

Papermaking is one of the most important industries in the area. Also bordering the lake for example, is Anxiang County -- almost half of its government's revenues come directly from its paper mills.

As a result, such factories are given 'special protection' by the local authorities. After the demise of their fish, villagers of Qingshanyuan took legal action against the nearby factories. However, the local government intervened, asking the villagers and factories to reach a settlement. The villagers declined the settlement offered by the factories, eventually winning the court case. They were awarded compensation of just 130,000 yuan (16,250 U.S. dollars) -- their loss was about 680,000 yuan (85,000 U.S. dollars).

In 2003, after a loss of more than 1 million yuan (125,000 U.S. dollars), the villagers took to the courts again, this time winning compensation of 180,000 yuan (22,500 U.S. dollars).

After the second court case, the villagers were told to forget setting up their business again. Tang Daiqin, the village's Communist Party chief said, "The government asked us to stop our cage aquaculture business as the factories do not want to compensate for our economic losses again."

"Unprecedented deterioration"

The factories are not the only ones to blame. Referring to the serious environmental degradation in and around Dongting Lake, Liu Shuai said, "The protectionist attitude and nonfeasance (failure to perform an act required by law) of the local government are the fundamental causes."

In order to better protect the wildlife in the reaches of Yangtze, the World Wide Fund for Nature (WWF) established an office in Changsha in 1999.

Wei Baoyu, an officer from the WWF commented that, "Over the past seven years we have witnessed the unprecedented deterioration of the Yangtze's ecosystem, therefore we are considering the inclusion of pollution control into our conservation program."

According to Jiang Yong, birds are the most affected by changes in the ecosystem. As one of their obligations, Jiang said that the EDNR has been keeping track of the local bird population. Their studies show that, since 2002, the number of birds sighted in the Dongting Lake area sharply declined -- from around 250,000 in 2002, to 130,000 in 2003, and just 89,000 in 2005.

The Yangtze Basin has, for a long time enjoyed the name of "a land of fish and rice". However, the fish population is falling, some rare species like the Yangtze sturgeon and the white sturgeon can no longer be found in Dongting Lake. On top of this, the Yangtze River dolphin, or "baiji", which used to swim the waters of Dongting, and long regarded as the "Goddess of the Yangtze", was recently declared "functionally extinct".

The fishing industry has started to feel the effect of the fall in the Yangtze fish population. A recent EDNR study of the Dongting Lake fishing industry highlighted the dramatic fall in output over the past twenty years. In the 1980s, fishing output was recorded at about 20,000 to 30,000 tons a year on an average. The 1990s witnessed a sharp increase -- nearly 40,000 tons a year. The output at present however, is less than

half of that recorded in the 1980s.

The vast majority of the fish that are caught today are less than one kilogram in weight. In the 1950s, 40 per cent of caught fish weighed in at more than one kilogram, while today only 7 per cent weigh over one kilo.

The EDNR figures reveal the stark reality of the situation in Dongting Lake -- a lake that could soon be empty of fish. "Fishermen often go home empty handed as there are hardly any fish left in the lake", said Jiang Yong, "it is driving some of them into poverty."

The fall in fish stocks cannot be totally attributed to the pollution of Dongting, indeed over fishing is fast becoming the main culprit. Fishermen have invented a new device, whereby bamboo sticks are thrust into the mud at the bottom of the lake, with nets fastened to them leading to a "dead corner". Each device can catch more than 500 kilograms of fish a night.

The most destructive practice however, is electro-fishing whereby fishermen pilot a fishing boat equipped with a storage battery and two electrodes stuck in the water. When the battery is switched on, all living organisms within five or six meters of the electrodes are killed, allowing fishermen to easily harvest them.

The local fishing authorities ban and impose fines for these kinds of fishing methods, however Jiang pointed out that some fishermen are in fact allowed to use the above mentioned methods?

Over fishing, widespread pollution of the lake, together with ignorance on the part of the local authorities, is taking its toll on the Dongting environment. Many local people believe the lake has a bleak future ahead of it, however there are some encouraging signs -- the government has started to take notice of the desperate situation in Dongting.

Time for action

In October last year, Chinese Prime Minister Wen Jiabao asked the government departments concerned to find solutions for the environmental degradation of Dongting. As a result, local government officials were pressured to act.

At the beginning of the year the Hunan provincial government shut down eight paper mills, in an attempt to tackle the catalogue of problems that Dongting faces. By the end of 2007, the provincial government plans to close all paper mills that have a capacity of less than 50,000 tons.

In terms of the illegal fishing practices, Liu Shuai noted that the provincial government has finally enacted related laws and regulations, "However, implementation now becomes the most important thing", said Liu.

Glimpses of Dongting's beautiful past are reappearing in some areas of the lake. In the Daxi Lake -- part of the EDNR -- thousands of water birds have returned and can be seen taking off from the beach and digging into the clear water to catch fish.

Vice director of the nature reserve, Jiang Yong declared, "Now that we have closed the whole Daxi Lake to fishing and ended the pollution, birds are starting to come here again."

The WWF's practices however, are proving to be the most helpful in preserving the environment in the Yangtze Basin. They are educating the local populace and encouraging them to develop eco-tourism and eco-fishing -- like cage aquaculture -- in order to help them to protect their livelihoods after being banned from destructive fishing techniques.

WWF officer Wei Baoyu commented, "What we are doing is trying to find a sustainable way in which the lake and the people can thrive together in harmony."

China's ecological protection fails to progress

(CAS, 2007-01-30)

China's ecological protection level has failed to progress compared with other nations over the last three years due to its rapid industrialization, according to a report released on 27 January.

The country ranked 100th out of 118 developing and developed countries in China's Modernization Report 2007, the same ranking as the last report in 2004.

The report detailed research and opinions of experts and scholars in the Chinese Academy of Science, the Ministry of Science and Technology and China's elite universities. The ranking of "ecological modernization" were based on 30 indicators, including carbon dioxide discharges, daily sewage disposal rates, forest coverage and drinking water safety.

The league table comprised four levels: the advanced group of 15 nations topped by Sweden; the middle group of 37 countries, represented by Spain; the primary level of 40 countries, including Brazil; and the low group of 26 nations, including China." Compared with social and economic modernization, China's ecological modernization lags far behind," said He Chuanqi, director of the research group.

Ecological deterioration was a major problem for China, he said.

China's economy has maintained a sharp growth in the past three decades, and GDP growth in 2006 hit 10.7 percent. However, the government has started to realize that environmental issues are an increasingly important factor which affects economic development. Last year, the government failed to meet its own targets for energy consumption and pollution reduction.

The central government last month announced eight economic priorities for 2007, with environmental protection listed third after macro-economic controls and agricultural development. The government needed to ensure economic development would not result in further environmental deterioration in the next 50 years, said He Chuanqi.

Bohai Sea severely polluted

(China News, 2007-01-31)

Bohai Sea is the worst polluted area in China. In 2006 alone, 1.58 billion tons of toxic waste were dumped into it.

In the last five years, Bohai has always been the dirtiest sea in China, for 26% to 41% of its sea areas could not meet the required environmental standards. More than 81% of all the sewages around its shores have been dumped in to the sea. Last year, 11 red tides hit Bohai Sea.

Experts call for central government's attention to the pollution in the Bohai Sea. It can be estimated that eco-environmental hazard in the Bohai Sea will be one of the most difficult challenges to provinces and municipalities around it.

1.3 Health

Nine cloning pigs born at a time in Harbin

(China News, 2007-01-04)

On December 23, 2006, a pregnant sow gave birth to nine cloning piglets at a time, breaking the world record for the number of cloning pigs born at a time. All the nine piglets were Min Pig and six of them began to suck for milk 30 minutes after they were born.

The cloning science project was carried out by a team of researchers from the Northeast Agricultural University led by Dr. Liu Zhonghua.

In international science circle, a pregnant female pig can usually give birth to at most 4 cloning small pigs. This is the first time in Harbin that a pregnant female pig gave birth to nine cloning piglets at a time and all the piglets were born through natural process. The success of the project shows that scientists working in the Embryo Experiment Lab at the Northeast Agricultural University have made a great breakthrough in the cloning pig embryo science project and their embryo technology in the production of cloning pigs equals the world advanced level.

China Develops New Human Bird Flu Vaccine Virus

(CRI, 2007-01-06)

A new recombinant H5N1 vaccine virus has been developed in China and is available for researchers and companies that want to develop or produce the H5N1 vaccine for human use, an official with the Chinese Center for Disease Control and Prevention (CDC) said.

Shu Yuelong, senior official with Chinese CDC, said the new vaccine virus was developed by the Chinese CDC and U.S. CDC from the cases of human infections of the deadly virus in southern China.

Researchers found that a newly isolated virus collected from people infected with H5N1 in southern China was distinguishable in terms of antigen from the viruses that had previously been selected for vaccine development, Shu said.

Shu said it was the first time for China to develop a new human H5N1 vaccine virus, which will be a great contribution to the prevention of the fatal epidemic.

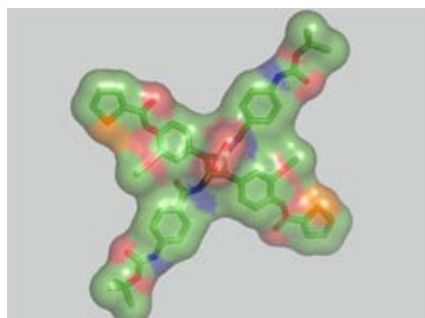
The World Health Organization (WHO) has put the new development on its Web site and said it's available for "institutions, companies and others interested in pandemic vaccine development."

The cases of human infection with bird flu in China numbered 13 in 2006, and seven in 2005.

In August 2006, the WHO found that there was antigenic variation among the recent H5N1 viruses. Since then, the WHO Collaborating Centers and H5 Reference Laboratories have been developing several new recombinant H5N1 vaccine viruses

Small molecules hold promise for convenient diabetes treatment

(CAS, 2007-01-09)



Molecular modeling predicts a low-energy conformation of Boc5 (SH7871)

An orally available "small molecules" recently identified by CAS scientists may hold the key to a more convenient treatment of the most common type of human diabetes, released the website of the *Proceedings of the National Academy of Sciences (PNAS)* at the beginning of 2007.

According to the report, researchers made key discoveries when studying the agonists of glucagon-like peptide-1 receptor (GLP-1R), which is a widely acknowledged important drug target for metabolic disorders such as diabetes and obesity. By mimicking the effects of glucagon-like peptide-1 (GLP-1), an essential incretin hormone which augments insulin secretion in response to food intake, GLP-1R helps to maintain glucose homeostasis within the human body.

Diabetes is a chronic disease that occurs with deficiencies either on insulin production (type 1 diabetes) or in its effectiveness (type 2 diabetes). As one of the most common human diseases in modern society, it can cause hyperglycaemia and damages to the heart, blood vessels, eyes, kidneys and nerves over time. Type 2 diabetes comprises 90% of people suffering from diabetes around the world, and is largely the result of excess body weight and physical inactivity. The World Health Organization estimates that more than 180 million people worldwide have diabetes, and the number is likely to be doubled by the year 2030.

Despite the numerous efforts in combating diabetes, no convincing solutions have been developed for the 180 million diabetes sufferers. Studies on orally-available and small-molecular GLP-1R agonists were largely unsuccessful, and a drug *Byetta* (exenatide) recently approved by the U.S. Food and Drug Administration is deficient for short-acting and requires two daily injections.

WANG Ming-Wei, the lead author of the present study and director of China's National Center for Drug Screening under CAS Shanghai Institute of Materia Medica (SIMM), screened with his colleagues more than 48,000 chemical compounds to finally identify a small molecule called *Boc5* with properties similar to GLP-1. Experiments on type 2 diabetic mice showed that Boc5, injected or orally taken, was effective to raise insulin sensitivity, reduce cholesterol levels and curb appetite. Within a month the subjects performed the same as the normal mice in serum glucose levels in addition to losing a considerable percentage of body weight.

Although Boc5 has only been tested in mice, it could be turned into pills once shown effective in humans, freeing the patients from the trouble of injection.

The paper, independently reviewed by Prof. Roger Unger and Prof. Stephen Bloom, both are prominent experts in metabolic diseases, will later appear as the This Week in *PNAS* article in the printed version of *PNAS*. Prof. Unger views highly of this "remarkable" discovery. "It is possible that this approach may not only revolutionize the treatment of type 2 diabetes, but in addition may herald an era in which other small non-peptidic molecules can be administered orally to mimic actions of peptide hormones," he commented.

Serious attention also came from the industrial circle home and abroad, for over 10 multinational pharmaceutical companies have expressed their interests in collaboration in this drug lead. Prof. Mads K. Thomsen, executive vice president/chief scientific officer with Novo Nordisk A/S and one of the forerunner of GLP-1 researches, said that his group was "truly impressed" that the CAS scientists "have been able to identify such an interesting molecule in a difficult area." Dr. Johan Selmer remarked that the "high standard data" were admirable even in the eyes of the "usually very critical" GLP-1 expert Novo Nordisk. Merck & Co., the first producer of sitagliptin (januvia) in the world, sent their congratulations through Dr. Lauren Shearman's letter, emphasizing the great challenges of the research and the highly innovative spirit of the Chinese researchers. The study was "most exciting and the biology package is impressive" according to Prof. Simon Campbell, a well-known chemist and fellow of the Royal Society in London.

Dr. Wang got his doctorate degree in physiology from the University of Cambridge in 1989, and joined SIMM in 2001. In 2003 he was appointed director of the National Center for Drug Screening under the SIMM. Co-sponsored by the Ministry of Science and Technology, CAS, the National Natural Science Foundation of China and Shanghai Municipality government, his research has already reaped a rich harvest with 7 national patent applications, including 2 international ones. If successfully commercialized, it will certainly result in tremendous economic and social benefits worldwide.

Genetic survey of giant pandas highlights top science stories

(CAS, 2007-01-10)



The findings of an exhaustive non-invasive genetic survey of giant pandas by a Sino-UK team led by Prof. WEI Fuwen from the CAS Institute of Zoology in Wanglang National Nature Reserve, a key giant panda habitat in southwest China's Sichuan Province, have been listed by the journal *Discovery* as one of the world's top 12 important and interesting stories in biology in 2006.

The new census, which is based on DNA analysis of panda feces, suggests that there may be 3,000 giant pandas living in China,

twice as many as was previously thought. Prior to this study, counting pandas was as much an art as a science: Pieces of bamboo in panda droppings were inspected for bite marks to distinguish individual bears. But nibbles from different pandas may look similar, so researchers tended to underestimate the population, according to conservation geneticist Michael Bruford of Cardiff University in Wales. "We are not saying the panda is out of the woods," he says, but with conservation efforts "the long-term prognosis is much more favorable for the future of the species."

Every year, *Discovery* digs through realms of newspapers and gigabytes of Web sites to find the 100 most important and interesting science stories for the year. Among the 100 stories, 12 are from biology in 2006.

China reports first bird flu case in months

(China News, 2007-01-10)

Li, 37, a farmer in east China's Anhui Province has been confirmed to contract the H5N1 strain of bird flu. It is the first human case of avian influenza in months, according to a report released by the Ministry of Health on Tuesday.

China has reported a total of 22 human cases of bird flu, including 14 fatalities, since 2003.

The Chinese Center for Disease Control and Prevention confirmed on Monday that the farmer was tested positive for the deadly H5N1 strain. People who had had close contact with Li were quarantined for medical observation. Currently there have been no bird flu outbreaks among poultry in the region. Li has recovered from the disease and left hospital on Jan. 6.

Flagship project on molecular imaging kicks off in Beijing

(CAS, 2007-01-11)

With the support of the National Basic Research Program, a research project entitled Key S&T Issues Concerning Molecular Imaging was officially launched on January 8 at the CAS Institute of Automation (IOA) in Beijing. Chaired by TIAN Jie, chief scientist of the project from IOA, the kick-off meeting was

attended by more than 60 researchers from such universities and research institutions as Tsinghua University, Peking University, and the CAS Institute of Biophysics and IOA.

Focusing on the core theory on in vivo fluorescent labeling molecular imaging and related techniques, systems and deep-seated issues of radionuclide labeling molecular imaging, the project is to develop a research platform for the discipline in this country, and actively promote the domestic development and manufacturing of related diagnostic facilities in China, according to experts. The intellectual property rights for the key proprietary inventions and innovations attained by the project will provide valuable basis for Chinese researchers to participate in the global competition in a wider scope and deeper level.

The project is expected to offer new and effective means for exploring the pathology, clinic diagnostics, monitoring and efficacy evaluation in the treatment of cancers or other murderous diseases.

The research results are expected to dramatically speed up the developing tempo of new drugs and reducing the time for their pre-clinical research. They would also be used in in vivo quantitative assessment of a drug's toxic or side effects and efficacy, and exploration of drug-administering routes, stereo-structure, pharmacometrics, and impact of animal species on drug efficacy. In addition, they may promote the basic research of life sciences, opening a new era of in vivo, dynamic and continuous probe into gene's functions, cellular dynamics, and the whole process of life development. The enforcement of the project will greatly facilitate the realization of some key national targets in population and public health.

The project has the following objectives preset for its implementation: transport theory of light in complicated organisms with strong scattering property and related inverse algorithms; a unified computational framework and algorithmic platform for data analysis and treatment; a system for demonstration and appraisal of the in vivo molecular sectional imaging; and a system for fluorescence- or nuclide-labeling images. The work will explore the molecule's impact on the nuclide-tagging process applicable to clinical medicine and on the fluorescence-tagging process applicable to the models of small-sized animals.

The project's main research priorities include: In the imaging theory, the project will make an in-depth probe of the forward problems and reverse problems concerning in vivo fluorescent sectional imaging and make efforts on developing a prototype system for in vivo fluorescence sectional molecular imaging. In data analysis and treatment algorithms, studies will be conducted on the transport of photon in organisms and reverse algorithms, so as to develop a unified computational framework and algorithmic platform for data analysis and treatment of large-scale multi-mode molecular images. Through a multi-layered and multi-system comparison, a biological demonstration is to be carried out systematically on new theoretical methods, key techniques and prototype systems. In the aspect of molecular probes, studies will be conducted on the labeling technique for specific probes, the detection methods for their magnification and high-sensitivity. By taking advantage of the prototype system for in vivo molecular imaging, all real-time and dynamic processes of a cancer's pathology and development may be observed in an immediate and visual appraisal.

Scientists call for stepping up research into the efficacy of macromolecular drugs



(CAS, 2007-01-12)

The 282nd session of Xiangshan Science Conferences entitled "Basic Research on the Efficacy of Macromolecular Drugs" was attended by 40-odd scientists recently in Beijing.

The conference was co-chaired by WANG Jingkang of Tianjin University, ZHEN Yongsu with the Institute of Medical Biotechnology under the Chinese Academy of Medical Sciences, YANG Zhimin from the University of Michigan and ZHANG Zhirong from West China School of Pharmacy, Sichuan University.

Macromolecules (peptide hormones, proteins, antibodies, substitutive enzymes and so on) are of high significance in treating some of the key diseases such as cancer and HIV. Their unparalleled strengths compared with small molecular drugs, according to Yang, lie in the high selectivity, the excellent curative effect, the repeatable pharmacological action as well as the convenience of biochemical mass production. Up to now, the development of macromolecular drugs (MMD) has already become a major task for researchers and pharmacologists all over the world.

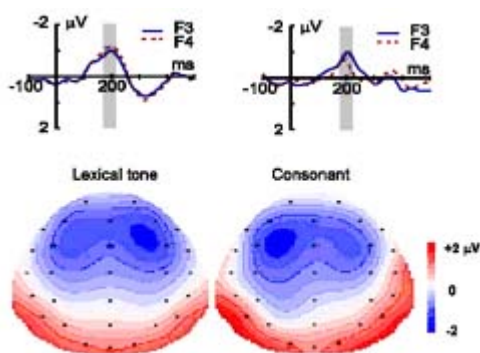
In his keynote speech "Efficiency Optimization of Macromolecular Drugs: Significances and Prospects," Yang also listed the bottlenecks scientists are facing today for MMD development. The drug delivery system remains a major problem, for instance when penetrating cell membranes or solid tumors. Also, the complex molecular structures of MMD make it difficult for scientists to identify their crystal and conformation polymorphs.

Yang pointed out that in order to optimize the effects of MMD, scientists shall on one hand highlight the study, design and construction of MMD delivery system, while on the other hand, they must pay enough attention to the particular properties of the drugs according to their unique molecular structures. For instance, there have been numerous reports on the invalidation or deficient release of the hormones which are polymerized with their carriers such as PLGA and PLA. Further research is needed for the purification and separation process as some MMD tend to interact with the solvent.

Six other scholars gave speeches on different aspects of contemporary MMD study and hot discussions were carried out by all participants of the conference.

The scientists suggested the R&D of MMD be listed in the National Basic Research Program of China for a stronger governmental support in funding and policy. They also called for the establishment of a standard system for MMD examination and approval as soon as possible. Consensus was reached that an interdisciplinary and international research group will largely promote the MMD studies in China.

Hemisphere dominance for early speech processing depends on acoustic cues, CAS scientists find (CAS, 2004-01-12)



It remains as a dispute over what cues is used by the human brain to determine the labor division of its two hemispheres for speech perception. A research group headed by Prof. CHEN Lin from the University of Science and Technology of China (USTC) recently reported their latest breakthrough on this interesting but long-standing issue, suggesting that hemisphere specialization mainly depends on acoustic cues before speech input is mapped into a semantic representation.

According to *the Proceedings of the National Academy of Sciences (PNAS)* published on Dec. 19, 2006, the researchers used the tonal feature of the Chinese language to solve this puzzle. They frequently presented to native Mandarin Chinese speakers a meaningful auditory word with a consonant-vowel structure, and infrequently varied either its lexical tone or initial consonant to

create a contrast with a shift in the word's meaning. As revealed by whole-head electric recordings, the lexical tone contrast evoked a stronger pre-attentive response in the right hemisphere than in the left, whereas the consonant contrast produced an opposite pattern.

In opposition to the widely accepted view that the left hemisphere of the human brain is dominant in speech perception, Chen and his colleagues came to conclude that our right hemisphere is responsible for pre-attentive processing of lexical tones before the task is taken over by the left half of the brain.

Regarding what cues are used by the brain for hemisphere dominance, there have been two incompatible hypotheses, *i.e.*, the functional hypothesis and the acoustic hypothesis. The former holds that the cues are linguistic functions, for example, the lexical meaning of a word. According to this theory, sounds with semantic information are preferentially processed in the left hemisphere. In contrast, the latter claims that the cues are acoustic structures of the auditory input. According to this theory, spectrally variant sounds are preferentially processed in the right hemisphere whereas the temporal variants such as non-tonal speech in the left. With their work, Prof. Chen and his colleagues have been able to bring the two hypotheses into harmony. They found that both hypotheses actually hold and just work at different stages of speech processing in the brain.

It is an ingenious and pioneer work to use Chinese lexical tones as an auditory stimulus for studying this issue and the results have helped solve the dispute, the reviewer of the article remarked. It is of considerable theoretical significances in understanding the pre-attentive speech processing.

Prof. Chen was a post-doc researcher at the State University of New York and Carleton University of Canada before he came back to China to establish the Hefei-based Auditory Research Laboratory at the USTC in 2002. The research is co-funded by the National Natural Science Foundation of China, the National Basic Research Program as well as the CAS Knowledge Innovation Program.

Studies of breast cancer diagnosis technology get support from government (CAS, 2007-01-19)

A research proposal on positron emission mammography (PEM) made by researchers from the CAS Institute of High Energy Physics (IHEP) recently won the backing from the National High-tech Development Program (dubbed the 863 Program).

It has been a clinical challenge to detect small breast cancers when clinical symptoms haven't appear. Scientists have found that the tasks could be more reliably performed by coupling functional breast imaging with PEM. The objectives of the IHEP project include the development of its key technology with independent intellectual property rights, a prototype, relevant algorithm and software, as well as core know-how for its commercialization.

As a multidisciplinary center of excellence focusing on fundamental and applied fundamental research, IHEP has scored progress in studies of nuclear medicine and imaging. Through the project, the institute is to further explore the application of nuclear technology by using the existing technologies, such as nuclear detection, fast electronics, high speed data acquisition and processing, image reconstruction and pattern recognition.

Monkeys watch eye chart to help locate myopia genes (Xinhua Net, 2007-01-19)

Two monkeys in Sun Yat-sen University have been looking at an eye chart for four hours a day for the past

month in Guangzhou, capital of south China's Guangdong province.

"They are helping us carry out research into human myopia genes," said Ge Jian, director of the Ophthalmic Center at Sun Yat-sen University.

The researchers are tracking changes to the eyesight of rhesus monkeys in the hope of finding the genes that cause myopia, Ge said.

On hearing the command "sit", one of the monkeys goes to sit in front of a computer screen just like a docile pupil. Its task is to watch an "E" letter on a computer screen 40 to 50 cm away and say in what direction it is pointing. The monkeys work for four hours each day, said the monkey trainer.

The "E" moves on the computer screen every three seconds. The monkeys have an "up" key in their hand which they are supposed to press if an upward "E" appears.

If the response is correct, the "pupil" is given bananas or peanuts. If wrong, the monkey is spanked, according to the trainer.

The tests on the monkeys' eyesight have been carried out for a month. The results of the experiment will be known in a year, Ge said.

The one and a half year-old monkeys are adults and initially would get half the questions right for big 80 mm-long "Es". After a month's training, they can score 97 percent with tiny two mm-long "Es".

One monkey once viewed 1500 "Es" in 50 minutes and only got six wrong, Ge said.

The ophthalmic laboratory became one of China's 17 National Key Laboratories on July 26 last year. It is the first and the only ophthalmic national key laboratory.

The lab launched research into the causes of myopia ten years ago and used to let monkeys wear contact lenses to look for human myopia genes.

"China now has the world second highest rate of myopia among schoolchildren and Asian children have a higher rate than children in other parts of the world, which must be related to genes as well as different styles of education," said Ge.

Long-term Persistence of Antibody Found in Recovered SARS Patients

(CRI, 2007-01-19)

Chinese researchers have found that a robust antibody against the SARS coronavirus remained in the bodies of recovered SARS patients for more than three years.

"The discovery will help in the research of a SARS vaccine and help find the best therapy if SARS returns," said Li Taisheng, head of the research group, told Xinhua on Friday.

The group of researchers from the Peking Union Medical College Hospital and the Chinese Academy of Medical Sciences has been following 30 recovered SARS patients since March 2003, when disease began to spread widely in China.

Although the antibody declined moderately as time passed, it remained at a high level in the body for more than three years after the patients recovered, Li said.

"We presume that recovered SARS patients could have long-term immunity from the disease," Li said.

"More studies are needed to prove whether recovered SARS patients would have immunity from SARS for life," Li said.

He said the neutralizing antibody was the most protective of all antibodies in preventing the SARS coronavirus from invading healthy cells.

Pinpointing the neutralizing antibody would help researchers develop a more effective SARS vaccine, Li

added.

The outbreak of SARS (severe acute respiratory syndrome) killed 809 people worldwide in 2003. However, public memories of the disease are fading and many scientists have given up research on it.

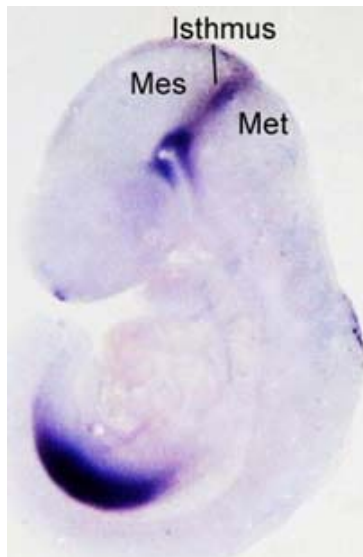
However, Chinese researchers have persisted.

Li said, "There are still many problems with SARS that cannot be explained. For instance, where did the virus come from? If it was from the civet cat, why did it spread to humans suddenly at that time? And why did it disappear as suddenly as it came? Will SARS come again in the future?"

The research will help the prevention and control of large-scale disease outbreaks like SARS in the future, Li added.

Studies shed new light on brain development

(CAS, 2007-01-22)



A major issue in developmental neurobiology is how the vertebrate neural tube becomes regionalized and patterned along its antero-posterior axis. A recent discovery by CAS researchers about the new function of a transcription factor called *Lmx1b* in mid/hindbrain Development will give an insight into the issue.

Scientists have already known that the development of the midbrain and cerebellum is controlled by the isthmus organizer, a constriction located at the mid/hindbrain boundary (MHB), and two secreted factors FGF8 and WNT1 emanated from the isthmus organizer are required for mid/hindbrain patterning.

Researchers from the CAS Institute of Neuroscience have demonstrated that inactivation of *Lmx1b* in mouse embryos results in large deletions in the midbrain and cerebellum. Their further studies indicate that *Lmx1b* plays an essential role in the midbrain and cerebellum development by controlling the initiation of FGF8 and maintenance of Wnt1 expression, as well as that of several isthmus-related transcription factors (*Pax2*, *Gbx2*, *En1/En2*) in the MHB.

This work was performed by GUO Chao and QIU Hai-Yan, PhD students under the direction of Dr. DING Yu-Qiang, leader of the Laboratory of Neural Development, and is published in the January 15th issue of the *Development*.

Expert: bird flu might transmit among humans

(China News, 2007-01-26)

The first high-level seminar on counter measures against infectious diseases among Chinese and Japanese hospitals was kicked off in Guangzhou Wednesday. At the seminar, Chinese academician Zhong Nanshan said related researches indicate that bird flu virus which now forms a pandemic among humans in the world is formed when the intermediate host of human and bird flu virus genes takes a major transformation. Right now, an influenza outbreak is occurring in some parts of the northern regions. If a bird flu outbreak also occurs in these regions at this time, the two kinds of virus might combine and develop into a new virus which will enable bird flu to transmit among humans. When this occurs, human beings will be exposed to a great danger. In order to prevent this, doctors and nurses should take counter measures to deal with

human-infected bird flu cases as early as possible. Patients who are infected with bird flu should be isolated and treated as early as possible.

According to Zhong, bird flu virus is transforming into a new type of virus in its infection process. When the virus first appeared in wild birds, it was only a lowly pathogenic flu virus. When the virus was transmitted to poultry, however, it developed into a highly pathogenic virus. In the end, the virus was transmitted to human beings due to human beings' close contact with poultry. Statistics show that from 2003 to 2007, there are altogether 269 human-infected bird flu cases, with 163 people killed by the disease, the death ratio reaching 60%. In China, some 22 people were infected by bird flu cases and 14 people died of it. All these patients had had a close contact with the infected animal or virus before they caught the disease. In addition, related researches indicate that bird flu virus which now forms a pandemic among humans is formed when the intermediate host of human and bird flu virus genes takes a major transformation. The researches also indicate that bird flu virus can be transmitted among human beings.

Most people infected by bird flu virus died of organs function exhaustion. Last year, however, doctors successfully saved the life of a patient who already suffered from organs function exhaustion. This is the first case in the world in which a patient who was infected by the bird flu virus and whose six major organs had already shown function exhaustion, was finally saved. This is indeed a miracle, Zhong said.

The patient is a 31-year-old truck driver. On June 3, he was sent to hospital after showing symptoms of fever, cough and sore throat. He suffered from respiration exhaustion on June 11 and was diagnosed to be infected by bird flu on the following day. At that time, the six major internal organs of the patient's body, including his liver, kidney, heart and blood circulation organ, displayed exhaustion syndrome. The doctors treated his disease with multiple means and the patient has now entirely recovered from the disease.

Guangxi allocates special fund to fight against AIDS

(China News, 2007-01-30)

Guangxi regional government plans to allocate 10 million yuan as a special fund for fighting against AIDS, Guangxi regional governor Lu Bing said when delivering a government report at the fifth session of the Tenth Guangxi Regional People's Congress last Friday.

A statistical report from the Guangxi Regional Health Bureau shows that there are now 26,000 reported AIDS cases in Guangxi Zhuang Autonomous Region, with 2,400 people infected with the disease. This year, the number of newly reported AIDS cases has reached 5,800 in Guangxi. Guangxi is now one of the regions in China that is severely hit by AIDS and the disease has now spread from urban to rural areas.

In order to fight against the disease, Guangxi regional government has outlined a five-year action plan. The plan requires that governments at various counties and cities in Guangxi should include AIDS prevention and treatment funds in their local budgets. In 2007, Guangxi regional government will set up an AIDS prevention and treatment fund at the regional (provincial) level, as one of the ten major tasks that the government will do for the public.

Youngest patient receives liver transplant surgery

(China News, 2007-01-30)

A baby boy just 129 days old was recently given a living liver transplant surgery to survive from his congenital atresia of biliary duct. Both the patient and the donor, his mother, are in a healthy condition, the *Guangming Daily* reported.

The baby's respiratory system remains stable now and his new liver is beginning to function normally. The surgical operation was performed by doctors from the Xijing Hospital of the Xi'an Fourth Military Medical University. So far, the baby is the youngest patient in China that has received a living liver transplant surgery. The success of the surgery indicates that China has made further progress in its living liver transplant technology.

The baby, named Jiabo, is the younger brother of a twin pair. Three days after he was born, his skin, the white part of his eyes, and his urine all became yellow in color. He was later diagnosed as having congenital atresia of biliary duct and biliary hepatocirrhosis, which was fatal to the baby. There are no medicines to cure the disease and the only chance for the baby to survive is to give him a liver transplant surgery, said the doctors to the baby's parents.

Hearing this, the mother agreed to donate her own liver to the baby. Since the baby was very small and had a tiny belly, the doctors finally decided to transplant a segment of his mother's liver to his body. As the vessels in the mother's liver were larger than the vessels inside the baby's liver, the doctors doing the surgery had to be very careful to ensure that the blood vessels of mother and child should be joined correctly and no blood clots be formed. With doctors' careful planning, the young patient survived the 13-hour surgery performed by over 40 medical experts.

CAS gives full backing to Institute for Nutritional Sciences (CAS, 2007-01-31)

The CAS headquarters will pay close attention to the development of the Institute for Nutritional Sciences (INS), the CAS Shanghai Institutes for Biological Sciences (SIBS), and backs the work of its leadership, says CAS Vice President CHEN Zhu during a recent visit to the institute.

Accompanied by SIBS President PEI Gang, Prof. CHEN Zhu made an inspection tour of INS and held discussions with its leadership and principal investigators on its development on 23 January. During the meeting, Vice Director of INS CHEN Yan reviewed the work of the institute in 2006 and blueprinted its development in 2007. The participants were eager to take the floor to speak about issues they are concerned about, such as the establishment of a healthy academic environment and a fair and transparent management system.

Prof. Chen gave a talk after hearing the opinions of the participants. He spoke highly of the achievements scored by the institute in the development of research team and graduate programs, as well as its scientific research and recent work of its leadership.

Prof. Chen said what INS researchers are addressing now in their studies are of strategic significance for this country. The further development of INS will depend on the concerted efforts of all INS staff members, interdisciplinary teamwork of various research teams, a harmonious and enterprising environment, an appropriate evaluation system, and optimized allocation of scientific resources. He urged the institute to make due contributions to the socio-economic development of the country by bringing into full play its steering committee and conference of its staff, mobilizing the initiative of all staff members, focusing research targets and laying stress on the social and economic values of its research results.

1.4 Key Technologies

Studies kick off on bio-safety of artificial nano-materials

(CAS, 2007-01-10)

The 21st century has witnessed the rapid development of nanoscience and technology. The nano-material, for example, have been manufactured in large scale and widely used in nearly 1,000 consumer goods and industrial products. Yet, due to their unique characteristics, nano-particles are found to have unusual interactions with the bio-system inside the human body, and disturb or regulate the life process, which might bring damages to people's health. To take the reins of the nano-technology, making it benefit, instead of hurt, our health is not only a challenge facing scientists, but also a critical issue for the governments of various countries when formulating an S&T strategy in frontier areas and public safety.

At present, studies on the bio-effects of nano-materials and their functioning mechanism are still in their preliminary stage. If China wants to be a big player in the development and production of nano-technology in the world, a crucial approach for it to raise its own competitiveness is to set national standards on nano-technology, including the safety standards.

To cope with these issues, with the support of the National Basic Research Program, a research team led by ZHAO Yuliang from the CAS-affiliated National Center for Nanoscience and Technology has started its research into bio-safety of artificial nano-materials.

In light of overall development of nanoscience and technology in this country and key issues in the interactions between the nano-particles and life bodies, the researchers will carry out studies on typical nano-materials which are now in mass production in China from the following six aspects: the special bio-behavior of nano-particles in an organism and its relations with the nano-characters; the selectivity of target-organs and target-cells, and cellular toxic effects; the innovative methodology in examination of the nano-particles and their bio-effect research; exploration of the safety schemes of nano-materials, and data compilation and assessment about nano-safety, methods for numerical analysis of the nano-material's bio-effects or the establishment of nano-safety modeling.

Through the studies, the researchers strive to systematically reveal common patterns for the interactions between nano-materials and life processes at various levels, ranging from a molecule, cell to the entire living being, and to model the bio-effect's prediction and its construction. In addition, they will make efforts to establish China's first data bank on nano-safety, providing scientific grounds for the safety prediction and protection of man-made nano-materials and introduction of schemes to solve issues on nano-safety. In this aspect, they are expected to attain some key R&D results to guarantee overall development and competitive edge for nanoscience and technology in China.

1.5 Structure of Matter

A new feat of powerful laser system

(CAS, 2007-01-15)

CAS physicists have recently developed an intense femtosecond (fs) laser facility with a peak power output of more than 350 TW. Dubbed *Jiguang-III* (or XLite-III), the work passed the acceptance check by a

10-member panel of experts under the auspices of CAS on last December 27. It was considered the one of the best results of its kind in open literature so far.



The success was accomplished by a research team led by WEI Zhiyi and ZHANG Jie from the Key Laboratory of Optical Physics, the CAS Institute of Physics. They have conducted the studies on the facilities and their applications for 10 years. Starting from the independent development of a femtosecond laser oscillator with ultra-short pulse width, they have scored a series of research breakthroughs, including the XLite-I laser device whose peak value of output power is 1.4 TW (1,012w),

and then the XLite-II with the figure up to 20 TW.

The XLite-III has received much attention from the international laser community, and its researchers have been invited many times to make reports at international symposia. Many experiments of high energy density physics have been successfully conducted on the system. At present, the device is in its stable and normal operation and it is expected to play an important role in some future frontier studies in high field physics and high-energy density physics.

1.6 Transport and Space

China set timetable for making large planes

(China News, 2007-01-09)

China is currently carefully and actively studying the large-plane project, Huang Qiang, secretary-general of the Commission of Science, Technology and Industry for National Defense, said on yesterday (Jan.8) afternoon.

Huang made the remarks in a press conference of the annual work conference of the commission yesterday in Beijing, pointing out that there have been mounting calls from the public for an early implementation of the large plane project.

Huang indicated it is estimated that within two or three Five-Year-Plan periods, the large plane would come into use.

Indigenously-developed large aircraft also represents the competitive ability of a country. The large-aircraft project in China can build on the expertise and experience of the aviation industry, particularly of the ARJ21, China's advanced regional jet whose manufacture started in December 2003.

Weather forecasting satellite begins operation

(Xinhua Net, 2007-01-12)

China Meteorological Administration (CMA) received the first set of images from the recently launched Olympic weather forecasting satellite Fengyun-2D (FY-2D) on Friday afternoon.

CMA Deputy Director Zhang Wenjian said the geostationary orbit meteorological satellite had successfully connected with ground control and was operating normally. He said the FY-2D would form a two-star observation system with Fengyun-2C, the country's first geostationary orbit weather satellite launched in 2004.

The two satellites will monitor weather changes across the Chinese territory every 15 minutes and send back images every half hour.

Chief designer Li Qin said, "The satellite will provide accurate and timely information about weather changes to help us with weather forecasts during the Beijing 2008 Olympic Games, especially the opening and closing ceremonies and important contests."

The FY-2D satellite was launched into the target orbit last December aboard a Long March-3A carrier rocket from the Xichang Satellite Launch Center in southwest China's Sichuan Province.

The ground control system will calculate sea surface temperatures and clouds and airflow parameters from data and images sent back by the satellite, maintain statistics and provide application services.

China is the third country in the world after the United States and Russia to operate both solar-synchronous meteorological satellites and geostationary orbit meteorological satellites.

The solar-synchronous meteorological satellites, like the FY-1 series, are used for medium-range weather forecasting, monitoring global ecological conditions and collecting data for shipping and aviation.

The geostationary orbit meteorological satellites are capable of continuously monitoring and identifying dangerous climatic conditions like typhoons and storms.

Besides monitoring weather changes in China, the FY-2D will also monitor weather changes in neighboring countries.

Radiometer onboard FY-2D weather satellite working smoothly

(CAS, 2007-01-18)



At 14:00 pm on January 12, the National Satellite Meteorological Center obtained the first set of infrared images from the five-channel visible infrared scanning radiometer onboard the Fengyun-2D, the second geostationary orbit meteorological satellite which was launched four days earlier.

As a major payload of the satellite, the scanning radiometer was independently developed and built by scientists from the CAS Shanghai Institute of Technical Physics. Experts say the image received via the system is clear with distinct gradation, showing

China's R&D capacity in building weather satellites has up the world's advanced level.

The Fengyun-2D will form a twin-star observation system with Fengyun-2C, China's first geostationary orbit weather satellite which went into orbit on Oct. 19, 2004, according to the China Meteorological Administration (CMA). The two satellites have their own observation tasks, but can also replace each other if one of them malfunctions, the CMA says. The new satellite will help this country bolster weather monitoring information from western China where cold fronts and sandstorms usually begin.

China's manned spacecraft to carry small satellite

(Xinhua Net, 2007-01-19)

When Chinese astronauts eventually walk in space, a small satellite will be used to monitor their movements, said a satellite expert on Thursday.

The satellite will be launched from the manned spacecraft and orbit around it. It will keep a close watch on spacecraft conditions and help monitor the astronauts' spacewalks, China News Service reported.

The next step in China's manned spaceflight program -- which could happen as early as 2008 -- involves allowing the astronauts to walk out of the spacecraft and dock the spacecraft with another target object, according to Sun Laiyan, head of China's National Space Administration.

Yang Genqing, a researcher with the Shanghai-based Small and Micro Satellite Research Institute, said small satellites weigh between 100 and 1,000 kilograms.

Compared with traditional satellites, small satellites are cheaper and quicker to manufacture, consume less energy consumption and are more reliable, Yang said.

Small satellites can link to form a "constellation" and outperform traditional satellites, according to Yang.

Mini satellite to be sent to monitor astronaut's activities

(China News, 2007-01-22)

In future, China will send a small satellite along with the manned spaceship. The small satellite will closely monitor the spaceship's working status and astronaut's activities outside the spacecraft. It will accompany the space shuttle in the space, Wen Hui Bao reported.

Experts usually call satellites weighing between 100 - 1,000 kilograms as small satellites, satellites weighing less than 100 kilograms as mini satellites, and those less than 10 kilograms as nano-satellites. Compared with big satellites, which were often produced in the past, small satellites usually cost less and take less time to make. They are light in weight and take little power to work, thus these small satellites can be produced in batches. With these advantages, small satellites become very popular nowadays, said Yang Genqing, deputy director of the Shanghai Mini-Satellite engineering Center.

Since small satellites can work in a very flexible way, scientists usually place several small satellites together so that they can function as the big satellites. When placing together, their functions are sometimes even greater than some big satellites.

The Institute of Aerospace Science and Technology under the Shanghai Jiaotong University is currently working on technological issues in order to establish a nano-satellite station in space in future. The nano-satellite station will consist of a major satellite and several small satellites. Based on specific needs, the major satellite can release one or more sub-satellites into space to diagnose and repair technical problems for the space shuttle, said Duan Dengping, the institute's vice president.

China to launch a new weather satellite in autumn

(Xinhua Net, 2007-01-28)

China is likely to launch a new polar-orbiting meteorological satellite, Fengyun-3 (FY-3), this autumn to improve its global weather monitoring capacity, the China News Service reported.

The satellite, which is developed and manufactured by the Shanghai Aerospace Administration, is China's second generation of solar-synchronous weather satellite.

The FY-3 weighed more than 2.4 tons, triple the weight of FY-1 satellite, Gao Huoshan, general director of the FY-3 research team, was quoted as saying.

The new satellite was equipped with 11 monitoring devices, which were far more sensitive than those of the FY-1, China's first generation of solar-synchronous satellite, Gao said.

He said the satellite would be able to detect meteorological changes more accurately and send back high-resolution images.

Once launched, the FY-3 would do a complete polar orbit every 102 minutes. It would replace the FY-1D,

which was launched in May 2002, and form a twin-star observation system with the FY-2D.

The FY-2D, a geostationary orbit meteorological satellite, was launched on Dec. 8, 2006, to provide better weather forecast services for the Beijing 2008 Olympic Games.

The FY-3 can observe global meteorological and environmental changes around the clock and will be used for weather forecasting and disaster prevention.

The China Meteorological Administration has announced earlier that China will launch another 22 meteorological satellites by 2020, including four more from the Fengyun-2 series, 12 from the Fengyun-3 series and six from Fengyun-4 series.

China to promote manned space flight, lunar probe

(Xinhua Net, 2007-01-29)

China will promote manned space flight, lunar exploration and a number of other science and technology initiatives in 2007, said Minister of Science and Technology, Xu Guanhua, here on Monday.

"These key projects are vital to upgrading China's innovation capacity and consequently its economic competitiveness," said the minister.

The ministry will invite experts to discuss budget requirements and the feasibility of these projects. Several projects will get underway by the end of this year, said Xu.

Large planes, a new generation of wireless communications and exploration of large oil and gas fields will also be high on the government's agenda.

Xu pledged to implement several other important projects in fields such as renewable energy and the environment, to help solve the pressing difficulties met with in current economic and social development.

In its national guidelines for medium- and long-term science and technology development, China vowed to make breakthroughs in key state projects over the next 15 years. It promised to invest public and private funds into a variety of projects covering energy resources, agriculture and manufacturing areas, space exploration and research on protein and nanotechnology.

China to launch 2 satellites for 2008 Olympic Games

(Xinhua Net, 2007-01-30)

China will launch two satellites dedicated to radio and TV relay services for the Beijing 2008 Olympic Games in June and October this year, the China Satellite Communications Corporation (CSCC) said Tuesday.

Manufacturing of the two satellites is underway under strict quality control to ensure the timely and smooth launch of them, said Guo Hao, deputy general manager of CSCC.

CSCC has been contracted to provide broadcasting and TV signal transfer and traffic monitoring and navigation services for the 2008 Olympic Games.

China launched an Olympic weather forecasting satellite, the Fengyun-2D, last December.

China Meteorological Administration (CMA) announced early this month the Fengyun-2D satellite had successfully connected with the ground control and was operating normally.

Chief designer Li Qin said, "The satellite will provide accurate and timely information about weather changes to help us with weather forecasts during the Beijing 2008 Olympic Games, especially the opening and closing ceremonies and important contests."

Besides monitoring weather changes in China, the FY-2D will also monitor weather changes in neighboring

countries.

2 News from Universities

China's university tuition 25 times higher than in 1989

(People's Daily, 2007-01-12)

Tuitions to China's universities, which range from 5,000 yuan to 10,000 yuan (1,200 U.S. dollars) a year, are about 25 times higher than they were in 1989, according to the China Youth and Children Research Center (CYCRC).

Annual incomes of urban residents have not nearly kept pace with tuition fees, rising only four times what they were at the end of the 1980's. When increases in the cost of living are considered, the actual increase in urban incomes is only 2.3 times more than in 1989, according to the research center's report released on Wednesday.

Rocketing tuitions have led to a sharp increase in the number of needy university students who can't continue their education simply because they can't afford it, an official with the center said.

He quoted a survey by the People's Bank of China (PBOC) that family's savings are mainly used to cover the cost of education.

Meanwhile, the rate of increase of tuitions is far higher than increased university funding provided by governments, says an official from the center quoting the PBOC's survey.

The center's report said educational institutions have turned into profit making institutions.

Fang Yi, another CYCRC official, said "We are unable to find excuses for not properly funding education nowadays considering the rapid rise of China's GDP and increased tax revenues."

China's colleges to enroll 5 percent more students in 2007: ministry

(People's Daily, 2006-01-25)

China's universities and colleges plan to enroll 5.7 million students in 2007, five percent up from last year, said an official with the Ministry of Education on Tuesday.

The number of postgraduates will reach 424,000, or 6 percent up from 2006, said Yuan Guiren, Deputy Minister of Education.

Yuan said the ministry will limit the growth of university enrollments, and most of the increased quota will go to the relatively under-developed western regions of China.

He said the ministry will focus on improving the quality and conditions of higher education rather than increasing the number of students.

China's college enrollment rate stood at around 3 percent in the mid 1980s, lower than many developing countries, but rose to five percent in the early 1990s.

In 1999, when the government decided to expand higher education, universities enrolled 1.6 million students, up 48 percent on the previous year.

In 2005, 5 million students were enrolled, 4.7 times more than in 1998. The number of students in higher education institutions hit 23 million in 2005, the highest in the world.

Many experts, students and parents believe the expansion of university enrollments that began in 1999 had led to a decline in teaching quality and study conditions in universities.

China emphasizes quality of higher education after years of expansion**(People's Daily, 2007-01-27)**

China's Ministry of Education has launched a nationwide project with 320 million U.S. dollars in government funding to improve the teaching quality of undergraduate education.

"This is the largest financial input that China has ever made to improve the quality of higher education," the Beijing News reported.

The funding, to cover the next four years, will mainly be used to adjust the structure of disciplines, improve teaching programs and materials and strengthen universities' teaching capacities.

The project included sponsoring 15,000 university students conducting innovative experimental projects and awarding 500 outstanding teachers annually, said Zhang Yaoxue, director of the ministry's Department of Higher Education.

It would also sponsor 3,000 staff in teaching or management in short-term work for universities in west China, where teaching resources were limited, Zhang said.

Universities were also invited to tender for the compilation of 10,000 high-quality textbooks, Zhang said.

China's higher educational institutions have been expanding rapidly following the government's decision to enroll more university students in 1999. The country has 23 million on-campus students, more than triple of the number in 1998.

Experts said that though the expansion enabled more people to enter the college, it has also led to the decline of teaching standards. Students face out-dated teaching methods, insufficient funding, and a lack of job opportunities on graduation.

Alarmed by the situation, the State Council, China's cabinet, ordered universities in 2006 to focus on improving teaching standards and listed "improving teaching standards" as a goal in its 11th five-year plan (2006-2010).

The ministry hoped the project could optimize the structure of disciplines, which could better meet social demands, and improve students' creativity.

"Undergraduate education is the most important part of higher education. Only if the quality of undergraduate education improves, can higher education produce more leading professionals for the country's development," Zhang said.

3 Innovation Management

Academy of engineering to enroll more members

(People's Daily, 2007-01-05)

The Chinese Academy of Engineering will select 60 new academicians this year, an academy spokesperson announced on Friday.

This is the seventh time the academy, which currently has a roll of 701, has taken on new members since it was founded in 1994.

To be accepted, candidates must now win the votes of more than two thirds of current members. Previously, half the votes was enough.

The stricter rule means that candidates must be recognized more widely by senior academicians, said Xu Rigan, deputy head of the academy.

Moral character will be a key criterion in this year's selection, said Pan Yunhe, another deputy head.

The period during which candidate information is made available for public scrutiny will be extended from two weeks to a month, and the academy will listen to any complaints or objections.

The results of the selection process will not be announced until December 2007.

Senior Chinese official calls for improvements to higher education

(People's Daily, 2007-01-11)

A senior Chinese official has called for improvements to the quality of the country's higher education and better regulation of university budgets.

State Councilor Chen Zhili said China's universities and colleges, guided by the scientific development concept, should focus more on the cultivation of talents and professional personnel to help upgrade the country's innovation capability.

She stressed the importance of improving the management of university's financial resources and called on university heads to closely monitor the use of their funds.

Chen said a new system to manage university start-ups should be built to promote the development of university enterprises.

"Institutions of higher learning should further promote educational reform and pursue scientific innovation in professional personnel training," said Chen at an ongoing educational meeting.

State councilor calls for improvement in postgraduate education

(People's Daily, 2007-01-26)

Chinese State Councilor Chen Zhili on Thursday called for improvements to postgraduate education so as to provide more skills for national development.

China's on-campus postgraduates exceed one million and more than one million students have received doctorate and masters degrees. The quality of postgraduate education had been recognized by the international community, she said.

Postgraduate education should be more comprehensive and coordinated and raise the quality of talents both in knowledge and morality, Chen told a meeting held by the Degree Committee under the State Council.

Students should be given more training in detecting, analyzing and solving problems rather than learning theories, said Chen, calling for the establishment of an effective quality monitoring system for postgraduate

education.

She called for better training for supervisors, saying their sense of responsibility should be raised.

Examples of high-quality postgraduate education should be set for all higher education institutes and the setting of postgraduate courses need optimizing, she added.

Science goals set out for 2020

(People's Daily, 2007-01-30)

Backed by strong government funding, 16 key scientific projects will be executed and 10 national laboratories built by 2020, Minister of Science and Technology Xu Guanhua said yesterday.

China saw a record high R&D expenditure of 300 billion yuan (\$38.5 billion) 1.4 per cent of GDP in 2006, 22 percent more than in 2005.

R&D funding will continue increasing this year and beyond, Xu said, elaborating on the nation's science program at a national conference in Beijing.

"It was the first time the proportion of R&D spending in GDP reached such a high level," he noted.

Thanks to the huge input, 53,305 patents were registered in China, Gao Changlin, director of the statistical analysis centre of the National Research Centre for Science and Technology Development, told China Daily.

Xu said the gap between China and developed countries in science and technology is "narrowing rapidly" and called the present "the best time in the history for science" in China.

The 16 national-level projects will cover biology, energy, the environment, health, IT, national defense and resources.

They will include the development of large aircraft, software systems, crucial electronic components, high-end computer chips, high-end machinery, new medicines, and advanced integrated circuits.

Xu also said the country will promote manned spaceflight, lunar exploration and a number of other science and technology initiatives this year.

Blueprints of all the projects will be submitted to the State Council for approval by the end of this year.

As one of the key steps, 10 national laboratories their locations are yet to be announced will be built for agriculture, aviation, clean energy, major diseases, nuclear fission, oceanography, protein engineering, quantum manipulation and transportation.

In 2000, China started building six national laboratories to conduct research on high-energy physics, molecular physics, nanotechnology, and radiation studies.

Xu said there is still a big imbalance in science development between the eastern and western regions of the country.

Three municipalities, Shanghai, Beijing and Tianjin, lead the country in science development.

4 China's International Science Cooperation

ESA Ready for Cooperation with China

(CRI, 2007-01-18)

European Space Agency (ESA) declared on Wednesday that ESA was ready to explore the possibility of cooperation in manned space flights with China, a country which had successfully accomplished two such flights.

"I would like very much to discuss this with our Chinese partners, if they make the proposal," affirmed ESA chief Jean-Jacques Dordain in the annual press briefing when referring to the potential cooperation in space exploration between the two parties.

"At the moment, we have a lot of cooperation with China in other space exploration domains, but not yet in the field of manned flights," indicated Dordain.

ESA carries out manned space missions through international cooperation, notably with the Russian Space Agency (RKA) and National Aeronautics and Space Administration (NASA).

CAS researchers undertake a FP6 project on GRID

(CAS, 2006-01-26)

Supported by the 6th Framework Program (FP6) of EU, a research project entitled the Bilateral Research and Industrial Development Enhancing and Integrating GRID Enabled Technologies (BRIDGE) has been started. As a representative of the project's partners, Prof. NAN Kai, deputy director of the Network Technology and Applications Research Laboratory, the CAS Computer Network Information Center, participated in the launching meeting on January 22 in Southampton, UK.

Organized by Fraunhofer-Gesellschaft, the two-year 1.7-million-euro project has 12 partners from Belgium, UK, Germany, France and China, including the CAS Computer Network Information Center and the CAS Institute of Materia Medica.

The objectives of the project is to develop and enhance European and Chinese GRID middleware technology, set up an integrated GRID test bed using European and Chinese middleware components for application demonstration, establish joint application showcases using distributed workflow and data access technology, and disseminate the results of the project to industrial and academic communities. Experts say the successful implementation of the project will demonstrate the benefits of GRID technology for international cooperation.

5 Miscellaneous

China spends 2.82% of GDP in education

(People's Daily, 2007-01-01)

China has spent 2.82 percent of its annual Gross Domestic Products (GDP) in education, up 0.03 percentage point year on year, according to an official report.

"China's total official education fund reached 842 billion yuan (105.25 billion U.S. dollars) in 2005, up 16 percent over the previous year," showed a recent report on the 2005 national education fund.

The report, jointly released by the Ministry of Education, National Bureau of Statistics and the Ministry of Finance, is the latest on the country's use of official educational outlay.

The report showed the country's government educational expenditure made up about 14.58 percent of all the state budget expenses, down 0.32 percentage point over the previous year.

The central government is aiming to make educational outlay reach four percent of its GDP in the next few years, according to the Resolution on Major Issues Regarding Building of Harmonious Socialist Society.

By the end of 2007, the government would have eliminated all charges for the country's 160 million rural students receiving a nine-year compulsory education, almost 80 percent of China's primary and junior middle school students.

Chinese Appreciate But Lack Science

(CRI, 2007-01-03)

According to a survey conducted by the China Research on Science Popularization, the majority of Chinese people have never visited a popular science museum due to the lack of such facilities, Xinhua Net reports.

The 6th Public Science Literacy Survey shows that only 9.3 percent of Chinese people went to science exhibitions or science and technology halls in 2004; 7.1 percent of the respondents had visited a museum of natural history; and 36.7 percent had visited popular science galleries open to the public.

The survey also shows that more than half of the people cited "facilities not available" as the main reason they did not go to science museums. Only 1.8 percent said "ticket prices are too high."

People in urban areas possess more science facilities than people living in rural areas. However, more city dwellers (19.6%) said they were not interested in them; while only 10.1 percent of people from the countryside expressed indifference.

Still, the majority of Chinese citizens had a positive attitude towards science according to the survey. 87.5 percent of them agreed, "Thanks to science and technology there are more opportunities for future generations." And 76 percent agreed, "Science and technology make our work easier and better."

China to encourage 200,000 overseas Chinese to return home

(People's Daily, 2007-01-04)

China hopes to entice 200,000 overseas Chinese to return home in the period 2006-2010 by setting up science centers where they can carry out their work, said the Ministry of Personnel on Thursday.

Statistics from 2005 show that barely a quarter of the Chinese scholars who have studied abroad have returned to China.

China wants to attract leading Chinese scholars who are familiar with international practice and can help lead research in certain fields back home, according to the Ministry.

The government is offering more favorable policies for returned scientists who want to launch start-ups by creating some 50 special technological incubation centers over the five-year period.

By the end of 2005, more than 930,000 Chinese have studied abroad, with about 230,000 returning to the country over the last decades.

Over 100,000 Chinese study abroad annually

(People's Daily, 2007-01-05)

Since 2002, the number of Chinese citizens studying abroad has exceeded 100,000 every year. In 2005, there were 118,500 people studying abroad, of which 106,500 were doing so at their own expense.

Chinese studying abroad at their own expense generally find themselves in a good situation, but some problems still exist, said a spokesperson from the Ministry of Education

He said that some overseas schools are not up to standard, and that parents who blindly pursue an overseas education for their child often fail to be adequately selective about the institution in which they enroll their child.

According to the statistics, 50 percent of self-financed study-abroad students arrange their placement through an agency, with this percentage increasing to above 70 in some areas.

Int'l workshop on women in science to be held in Beijing

(CAS, 2007-01-09)

Under the auspices of CAS, the Third World Organization for Women in Science (TWOWS), and the Academy of Sciences for the Developing World, an International Workshop on Women in Science will be held on 16 and 17 August in Beijing.

Co-sponsored by the Chinese Academy of Engineering, the China Association for Science and Technology and the All-China Women's Federation, the workshop aims at identifying the reasons behind women under-representation in their S&T careers, and offering fresh insight into gender issues in the S&T community, according to Prof. FANG Xin, chairperson of the meeting and a member of CAS Presidium. In particular, it will share experience and draw lessons and recommendations among representatives, she notes, adding that the results of this workshop will be communicated to individuals and organizations worldwide to make greater contributions for the development of women in science and technology.

The workshop will focus on the following four topics: relations between women and science, how to attract women into the scientific fields, influential factors in the success of women scientists, and how to encourage the women in rural areas to master scientific knowledge.

The executive board meeting of TWOWS will also be held on the occasion, says Prof. Fang who is also a vice president of TWOWS, which is the largest organization of women scientists in the world. Officially launched in 1993, TWOWS strives to improve the status of women within the scientific community and to provide opportunities for them to gain leadership roles within their societies. Its secretariat is located in Trieste, Italy.

CAS researchers conduct technology foresight towards 2020

(CAS, 2006-01-17)

Supported by the CAS Major Research Program, a group of researchers from the CAS Institute of Policy and Management (IPM) have recently completed a study to foresee China's technology development over

the next 20 years.

Since 2003, the researchers have carried out Delphi survey of the key topics that should receive priorities in the near future in eight technology fields (information, communication & electronics; energy; materials; bio-tech & medicine; advanced manufacturing; resources & environment; space; and chemistry & chemical engineering).

The researchers have developed a methodology for systematic foresight of technology development that fit China's actualities, according to Prof. MU Rongping, leader of the research and director of IPM. They also put forward the framework for developing a technology foresight databank and technology monitoring system based on Delphi survey, laying a good foundation for future studies in technology foresight and S&T development strategy.

CAS joins hands with government departments in curbing scientific misconducts (CAS, 2007-01-23)

A joint conference has recently been co-established by six governmental departments and institutions, namely the Ministry of Science and Technology (MOST), the Ministry of Education, the Chinese Academy of Engineering, the National Natural Science Foundation of China, the China Association for Science and Technology, and the Chinese Academy of Sciences (CAS) to tackle the rising claims of scientific misconducts.

The major responsibilities of the joint conference are to provide guidance and policy measures for the development of scientific integrity in China, make investigations and communications regarding misconduct cases, and coordinate policy implementation.

The working office is now located in the MOST to deal with reports against offenders from the public. Meanwhile, a consultation committee composed of some 15 distinguished experts from the scientific and legal circles has been organized for providing professional advice to the conference.

The system is set up to enhance the performance of the trial regulations against scientific misconducts issued last year and put into effect at the very beginning of 2007. As the first unified regulations in the country to put scholars' misbehavior into its legal system, the decision came after a number of high-profile cases of suspected scientific fraud and plagiarism in China in earlier 2006.

China launches AIDS prevention effort among 200 mln migrant workers (People's Daily, 2007-01-27)

Millions of Chinese migrant workers, who are among the most vulnerable to HIV/AIDS, are the target of a new AIDS prevention program being co-sponsored by the Chinese and American governments

The education program will be mainly conducted in work places that employ large numbers of migrant workers, said Zheng Dongliang, the program's director here on Friday.

Migrant workers are mainly young men who are away from their spouses for most of the year, leading some to seek the services of prostitutes, which in turn makes them vulnerable to HIV infection.

Statistics from Beijing's Health Bureau show that migrant workers accounted for about eighty percent of Beijing's new HIV carriers last year.

At the program's launch, Zheng said employers and migrant workers will be taught how AIDS is transmitted and how it can be prevented. Free brochures will be given out to workers.

"We also want to protect the rights of HIV carriers to work and reduce the stigma they face in the

workplace," he said.

The stigma is so great in China that many migrant workers hesitate to take free HIV tests that are available at their work place, fearing they may be fired if they test positive.

U.S. embassy counselor Deborah Selogohn said the education program will also help raise the awareness of the migrant worker's spouses to prevent them from being infected.

Selogohn said that the HIV/AIDS workplace education project has been implemented in 23 countries and she was glad to see its launch in China.

She said through the program, the U.S. government will help build capacity and share effective approaches in preventing and treating HIV/AIDS and caring for HIV/AIDS sufferers.

China has 200 million migrant workers, of which more than 120 million work in cities. The remainders work in towns.

This week's Caijing Magazine's online edition reported that the U.S. Department of Labor is providing 3.5 million U.S. dollars in funding for the program, implemented by China's Ministry of Labor and Social Security (MLSS).

According to Zheng, the Chinese ministry has conducted pilot projects of the program in Guangdong, Yunnan and Anhui provinces in China last year.

China is at a key stage in its fight against AIDS/HIV. A report from the International Labor Organization estimates that China could lose five million laborers by 2015 if it doesn't take effective measures to address the grave problem.

China reported 183,733 HIV and AIDS cases in 2006, up 30 percent from 2005. The increase was partly due to an improvement in case reporting.

Experts from the Ministry of Health estimate there are actually 650,000 people living with HIV/AIDS in China. Chinese Vice Premier Wu Yi has vowed to limit the number of AIDS cases to 1.5 million by 2010.

China grants more than half of invention patents to foreigners last year

(People's Daily, 2007-01-31)

China approved 58,000 patents last year, with more than half being granted to foreigners, the State Intellectual Property Offices (SIPO) said Tuesday.

Applicants from overseas filed 33,000, or 56.6 percent of all patents, said SIPO spokesman Yin Xintian.

The rising of patent applications from overseas show that China's market is drawing the attention of other countries since China's entry into the World Trade Organization, said Yin.

SIPO director Tian Lipu said although China has granted a large number of intellectual property rights (IPR), domestic IPR competitiveness and innovation capability is still far behind those of developed countries.

About 99 percent of Chinese companies never apply for patents, said Tian.

Research and development investment of large and medium-sized corporations accounted for 0.71 percent of their annual turnover on average, much lower than the average five percent in developed countries.

"Domestic companies should strengthen their IPR awareness, continue to improve their innovative capacities and be active in patent applications both at home and abroad," he said.

China's national IPR strategy to come out in first half year

(People's Daily, 200-01-31)

China's national strategy on intellectual property rights (IPR) protection will come out in the first half of this year, according to the State Intellectual Property Office (SIPO) on Tuesday.

The drafting of the strategy is on the final stage and the deliberation of 20 research reports included in the strategy will be done before the end of February, said SIPO spokesman Yin Xintian.

The strategy is composed of 20 topics and one guideline, covering the system building, law enforcement, talents training and public awareness regarding the IPR protection.

The drafting of the strategy began in July 2005 with the leadership of the State Council, China's central government.

Last year, the SIPO granted 573,000 patents, 20.3 percent more than the previous year, meanwhile 3,826 international patents were registered by Chinese.

By the end of 2006, China granted more than 3 million patents to both nationals and foreigners, according to Yin.

6 Information for upcoming Workshops in March

The Surface Ocean Lower Atmosphere Study (SOLAS) Open Science Conference

Date: March 6 – March 9

City: Xiamen, Fujian Province

<https://www.confmanager.com/main.cfm?cid=457&nid=4216>

International Forum for Orthopaedic Trauma (IFOT)

Date: March 23 – March 26

City: Guangzhou, Guangdong Province

<http://www.cjot.org/isfot/indexen.htm>

The 2nd International Conference on Plant Molecular Breeding

Date: March 23 – March 27

City: Sanya, Hainan Province

<http://www.icpmb.org/142.html>

China Interventional Therapeutics (CIT) 2007

Date: March 29 – April 01

City: Beijing

<http://www.citmd.com/CIT/2007/en/index.html>

Abbreviations

- CAS** - Chinese Academy of Sciences
- MOST** - Ministry of Science and Technology
- CRI** - China Radio International