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SPECIAL ISSUES

National Conference on International S&T Cooperation

Chinese Ministry of Science and Technology (MOST) opened on August 28, 2011 its 9th national conference on international S&T cooperation in Beijing. At the meeting, MOST released an array of policy documents for the 12th five-year period (2011-2015), including a special plan on international S&T cooperation, a by-law on supervising international S&T cooperation projects, and a by-law on managing international S&T cooperation centers. Meanwhile, a show was staged to demonstrate the results and findings derived from international S&T cooperation.

China has so far established S&T partnerships with 152 countries and regions, and inked 104 inter-governmental science and technology cooperation accords with 97 countries and regions. MOST has stationed 141 diplomats in charge of S&T affairs in 69 missions in 46 countries. Meanwhile, China has become the member of more than 200 inter-governmental S&T cooperation organizations, which shaped up China's diversified S&T cooperation system dominated by inter-governmental cooperation.

During the 11th five-year period (2006-2010), China has secured the support to 1,728 international scientific and technological cooperation projects, with an investment worth RMB 4.375 billion, and harvested fruitful results from them. China has been part of a range of large science projects, including international genomes project, Integrated Ocean Drilling Program (IODP), Group on Earth Observations (GEO), International Space Station-Alpha Magnetic Spectrometer project, International Thermonuclear Experimental Reactor (ITER), Galileo project (European Civil Global Navigation Satellite System) among others. In addition, China has worked with the United States, Russia, Europe, and Japan in preparing international standards and addressing major global issues.

Meanwhile, China has launched a range of campaigns to attract talented scientists and innovation leaders, through the mode of "talent + project", in an attempt to land breakthroughs in key technical areas. China has recruited more than 3,000 specialists from the Thousand Talents Program, Cheung Kong Scholars Program, and CAS Hundred Talents Program. Up to date, China has established 33 international joint research centers at the national level, 207 international S&T cooperation bases, and 5 international innovation parks, making them an important platform for international S&T cooperation.

In addition, China has staged major projects in the developing countries, promoting the transfer and application of Chinese made technologies through diversified modes, including establishing high-tech parks and national laboratories, perfecting scientific research systems, sponsoring training seminars, staging joint researches, and establishing demonstration areas in the developing countries. The efforts have accommodated the urgent needs of developing countries for raising their technical capabilities, while enhancing the mutual trust and friendship between China and other developing countries. For example, the CBERS data receiving station project, a role model for the South-South cooperation, allows satellite data being shared among African countries for crop yield assessment, disaster mitigation, and environment monitoring.

Hundred Studios for Leading Scientists

According to a national medium and long term plan recently released for human resources development in the area of science and technology (2010-2020), China will build 100 studios for world-class scientists and their teams in the coming 10 years. Meanwhile, China will strive to nurture some 3,000 promising young innovation leaders in the areas of cutting edge technologies and emerging strategic industries.

The Plan points out that in the next 10 years, China will secure sustained support to the

capacity building of Chinese scientists, creating agreeable research climate and condition for them, and fostering a research contingent enjoying original innovations. The proposed 100 studios will enjoy the sustained support of state treasury for operation and research. The studios will be governed under an internationally accepted management system. Chief scientists will be allowed to build their own teams in a self-managed, free exploring, and self-restraint manner, in an attempt to generate original S&T findings of international impact, and raise the influence of Chinese scientists in the world.

The Plan also says in the next 10 years, China will gear up the development of innovation leaders and research teams, with an enhanced policy support to young scientists, especially to the outstanding young scientists under the age of 35 for independent studies.

INTERNATIONAL COOPERATION

China-Brazil S&T Committee Meeting

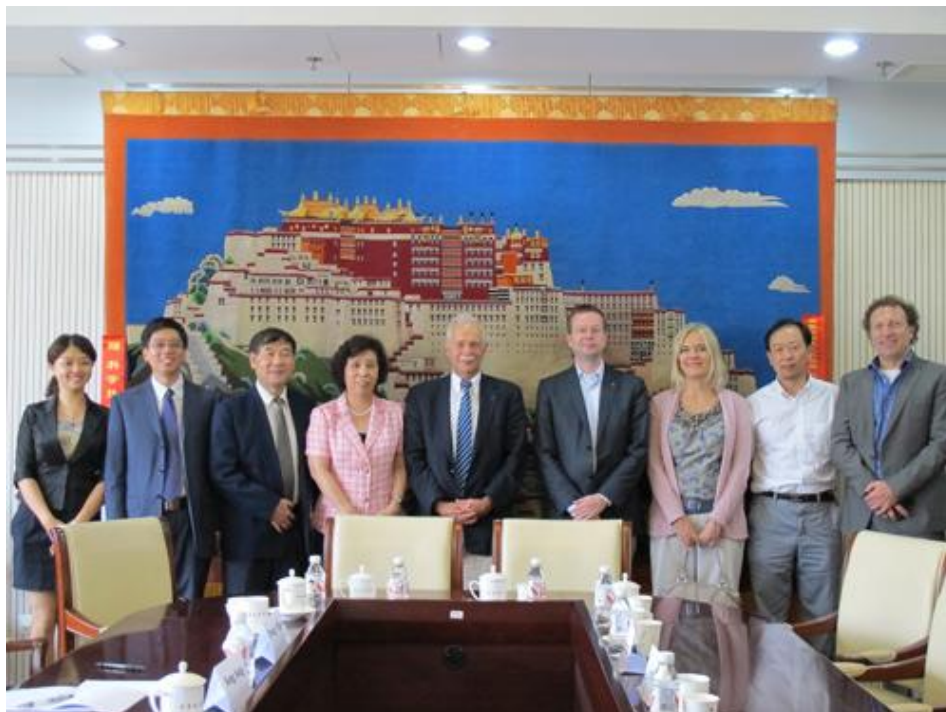


The 2nd China-Brazil High-level Science, Technology and Innovation Sub-Committee meeting was held on August 23, 2011 in Beijing. CHEN Xiaoya, Chinese Vice-Minister of Science and Technology and Nuo Bule, Brazilian Vice-Minister of Science, technology, and Innovation, spoke at the meeting. Chen said the S&T communities in the two countries shall work closely to bring out practical results from the bilateral cooperation. CHEN also briefed the other side of China's response to climate change and energy shortage, and the preparation of its 12th five-year plan.



Participants from both sides discussed a range of issues, including innovation policy, nanotechnology, satellite meteorology, bamboo planting and associated and processing, biotechnology, climate change among others, and reached some intentions for future collaborations.

CHEN Met with German Guests



August 24, 2011- CHEN Xiaoya, Chinese Vice-Minister of Science and Technology met with Juergen Mlynek, the visiting President of the Helmholtz Association and his party. CHEN told Mlynek the two countries are working hard to implement a range of accords signed between the two countries in the areas of electric car, life sciences, innovation policy, and environmental protection, under the framework defined by the talks between China and Germany when Chinese Premier WEN Jiabao visited Germany last June.

The Helmholtz Association, the largest national research institution in Germany, has the priorities of research that are quite close to the one defined by China's national science and technology planning and major S&T projects for the 12th five-year period . In this context, China is willing to support its universities, industries, and research institutes to work with major German scientific institutions, including Helmholtz. CHEN also briefed the other side of China's preparation of its 12th science and technology five-year plan.

Oldest Eutherians Found

A team made up of Chinese and U.S. scientists published their findings on the oldest "grandmother" of humans ever found from the Jurassic of China in the August 25, 2011 issue of journal *Nature*. Unearthed in 2009 at a site in Linglongta, Jianchang County of Liaoning, China, the fossilized animal is a new eutherian of 160 Myr, the oldest placental eutherian mammal known to the world. The fossilized animal has an incomplete skull of 2.2cm, partial bones of the back of the head, and the prints of some residual soft tissues. According to scientists, the Chinese Jurassic beast has retained complete forelimb and hand bones, indicating that it had the ability to climb. The adapted feature helped it survive the then ecological environment dominated by dinosaurs and other vertebrates. Its teeth betrayed the trace as an insectivorous mammal. Scientists estimated that the animal had a weight around 13 grams.

At a news conference held on the day at Beijing Museum of Natural History, Dr. JI Qiang of Chinese Academy of Geological Sciences said more than 90% of the mammals on the earth are placentals, including the primates like humans. In this context, the Chinese Jurassic beast is the most primitive ancestor known to the humans.

According to a briefing, the discovery of the Chinese Jurassic beast extends the first appearance of the eutherian-placental clade to a much earlier time, and resolved a discrepancy between the previous fossil record and the molecular estimate for the placental-marsupial divergence, which creates a new fossilized reference for studying the evolution of mammals.

Collaborative Study of Xuchang Man

Not long ago, Henan Provincial Institute of Archaeology and the Dept. of Anthropology under the University of Vienna jointly inked a deal to study Xuchang Man's skull using scan

imaging. Lingjing is a late Paleolithic site in Henan, where the Xuchang Man relics were excavated with some 30,000 pieces of objects, including fine stone tools, dental needles, ocher dyes among many others. The fossilized human skulls excavated from the same site, dated back to 80,000 -100,000 years ago, makes a major discovery of ancient humans and associated cultures in China, East Asia and even in the world, providing valuable reference for studying the origins of contemporary humans.

The study of Xuchang Man's skull will be conducted in two phases. At phase 1, scientists will collect basic data through scanning the fossilized human samples at a high precision CT lab of CAS Institute of Vertebrate Paleontology and Paleoanthropology Laboratory. At Phase II, scientists will handle the massive data derived from the scanning at the University of Vienna.

Xuchang Man's skull has been reconstructed in a model, allowing scientists to work on the skull in a preliminary manner. The collaboration will test the results of previous studies and make a further study of the findings.

RESEARCH AND DEVELOPMENT

World's First Lysine Gene Producing Cows



Jilin University Dept. of Agriculture has recently bred out a calf carrying lysine producing genes. The healthy and lively calf is black and white in color, with a birth weight at 31.5 kg. A preliminary test confirms that it has carried the lysine producing genes as expected. According to Prof. LI Ziyi, head of the project, researchers inserted the lysine encoding genes into the fetal fibroblast cells of a female Holstein using molecular biology techniques, made it a somatic cell nuclei donor. The cloned embryos were prepared through somatic cell transfer. The cloned embryos were developed in hybrid Simmental surrogate cows (yellow and white in color). The recipient cow gave birth to a female calf (Holstein) in the evening of August 6, 2011.

Multi-Function Hydraulic Drilling Rig

China's first large power hydraulic drilling rig designed with versatile functions recently called a success at Chengdu CSR Tunnel Equipment Corporation. The company started to develop the needed technologies and associated equipment in 2009. Researchers worked out a range of solutions to developing high-power and high-frequency impact head, automated fixtures, integrated hydraulic control, and adjustable Cartesian coordinate system. Based on the technologies, researchers rolled out China's first homemade multi-function full-hydraulic drilling rig. The high-power and rotational impact drilling rig enjoys numerous merits, including track walking and enhanced climbing ability and flexibility. It works with both electricity and diesel as power source, desirable for reducing harmful gas emissions in the tunnel, and for improving the environment of the construction site. The central control unit is a programmable logic controller (PLC) – an automated and scalable module proportional to hydraulic operations. The proprietary core component - power head, is designed with high-impact energy and frequency for an enhanced efficiency.

NEWS BRIEFS

Advanced Seawater Cooling System

"100,000-ton seawater cooling technology and associated equipment development", a project under the National S&T Support Program for the 11th five-year period, has recently passed the experts panel's approval. To build a seawater cooling system for a 1000MW ultra-high-parameter thermal power generator, researchers have mastered a range of key technologies for preparing seawater cooling chemicals and building a large seawater cooling tower, and completed the construction of two seawater cooling demonstration projects with a capacity of 100,000 ton/hour, and a seawater cooling chemicals producing

center with an annual capacity of 3,000 tons. Meanwhile, researchers have prepared "seawater cooling treatment design specifications (GB/T 23248-2009)", a national standard for the purpose, while working on 12 other national standards and 22 marine industry standards. The effort has led to the establishment of the technical system for China's 100,000-ton seawater cooling system.

The demonstration projects have, since putting into operation in September and October 2009 respectively, produced 60 million tons of substitute fresh water, with a reduced cooling operation cost by 50%, compared with fresh water, and a drastically reduced heat water outflow by more than 95%, thanks to direct seawater cooling. The diffusion and application of the technology will facilitate the restructuring of water resources in the coastal areas, alleviating freshwater shortage, and raising the environment-friendly level of coastal thermal power plants.

China's First Internationally Compatible Marine Map

On August 25, 2011, Chinese Navy released in Beijing an official electronic marine map covering China's offshore areas. Prepared in line with international standards, the electronic map enjoys numerous merits, including international compatibility, easy updating, enhanced precision for ship positioning, and standardized rich information. Working with an electronic chart display and information system, the marine map is able to show the GPS position of a ship in an automatic manner, free from information lag caused by chart plotting. When overlapped with radar echoes, the map allows people to see the environment surrounding the ship.

Comparing with the previous electronic marine map compiled in line with China's national standards, the new marine map has been added with a range of new functions, including planned routes plotting, actual tracks recording, navigation hazard warning among others. One can update the map in an automatic manner, either via satellite or via radio, greatly enhanced the safety and convenience of navigation.

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