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**SPECIAL  
ISSUES**

**Outline for IP Protection**

On April 26, 2006, the Chinese government published an outline for protecting intellectual property in 2006-2007, in an attempt to enhance the crack down on criminal violation of intellectual property, and

establish a long-term mechanism for IP protection. The outline makes the following as major priorities for IP protection: cracking down on pirating and trademark violation, enhanced efforts for patent rights protection, strengthening IP protection in import & export and exhibition activities, and establishing a nationwide service system for IP violation complaints. China plans to establish IP violation complaint centers in 50 cities.

The outline points out that China shall be an active part of the international efforts in laying down IP protection rules, in an attempt to protect China's own intellectual property in foreign trade activities. China shall also strengthen its international exchanges and cooperation in the area, addressing IP conflicts with foreign countries, promoting the establishment of bilateral mechanisms for cracking down on IP violation, and containing transnational pirating. The outline also asks to establish a long-term mechanism for perfecting the existing legal system, efficient law enforcement coordination, and for raising industrial awareness of IP protection.

According to a briefing, China will embark on addressing a range of major technical issues involving IP protection, including calculating illegal revenues from pirating activities, IP abuse control, and other issues relating to industrial names, trademarks, and famous trademark mocking. It will also enhance legislations for IP protection in the areas of inherited resources, traditional knowledge, and folk arts.

### **Enhance Innovation at Local Universities**

Not long ago, the Chinese Ministry of Education and Ministry of Science and Technology issued a joint circular on further strengthening S&T innovations at local universities, in an attempt to deepen the implementation of the strategies of rejuvenating the nation with science and education, and national capacity building with talented people, raise the innovation capability and personnel quality of local universities, and take full advantage of their roles in

S&T innovations.

The circular proposes eight areas for more attention: 1) fully aware of the importance of strengthening S&T innovation activities at local universities; 2) perfecting the guiding lines and principles for S&T innovation activities at local universities; 3) deepening the reform, increasing the input, and firming up the foundation for such innovation activities; 4) strengthening capacity building of faculty, and practicing the strategy of building the university with talented people; 5) strengthening capacity building of S&T innovation platforms, and improving S&T infrastructure; 6) enhancing cooperation between industry, universities and research institutes, and facilitating spin-off and associated industrialization of research findings; 7) expanding S&T cooperation and exchanges both domestically or internationally; and 8) strengthening the organizing and steering part of S&T innovation activities at local universities.

### **Pilot Project for Innovation Industry**

The Chinese Ministry of Science and Technology, State-owned Assets Supervision and Administration Commission, and All China Federation of Trade Unions have recently made a joint decision to launch a pilot project for building innovation oriented enterprises. Aiming at raising industrial proprietary innovation capacity, the pilot project will explore effective modalities and measures making industry the mainstream of technology innovation activities, enhance guidance and support for such activities, and facilitate a closer tie between industry, universities and research institutes. The project will eventually lead to the establishment of a variety of innovation oriented enterprises having demonstration roles, guiding more enterprises to embark on innovation oriented development, in an attempt to enhance proprietary innovation capacity, accelerate economic restructuring and change of growth modalities, and provide support for building an innovation oriented country.

The three government agencies will select 100

enterprises as experimental sites from major state enterprises, research institutes that have been converted into an industrial R&D system, and other businesses mainly focused on technology innovations. While providing guidance for the selected enterprises, the three agencies will provide support for pilot enterprises, in terms of S&T project contracting, construction of innovation centers, personnel contingent capacity building, standards and intellectual property, and enhancing technology innovations.

## INTERNATIONAL COOPERATION

### UNDP Supports S&T Envoy

Not long ago, an initiative was jointly kicked off by the Chinese Ministry of Science and Technology, Ministry of Commerce, and UNDP, to explore an innovative long-term mechanism for poverty alleviation with science and technology in China's rural areas. The project is designed to raise farmers' income using advanced environment friendly technologies, through the so-called S&T envoy system, in an attempt to facilitate the sustainable development in the rural areas. LIU Yanhua, Vice Minister of Science and Technology, WANG Yue, Director of China International Center For Economic And Technical Exchanges, a part of the Ministry of Commerce, and Khalid Malik, UNDP Resident Representative in China, were present at the signing ceremony.

China has since 2002 deployed over 20,000 S&T envoys across 598 counties in 24 provinces, on a trial basis. UNDP is the first international organization supporting exploration and diffusions of the S&T envoy system, in collaboration with the Ministry of Science and Technology. The implementation of the project facilitates further improvement of the envoy system, using proven international experiences gathered by UNDP, which will in turn lead to the establishment of a long term mechanism for poverty alleviation with science and technology, initiated by government and

participated by all walks of life. The project also constitutes a powerful S&T support for building the socialist new rural areas.

According to a briefing, the project will establish an effective S&T supporting system, combining both policy proposals and grassroots pilot projects. The project will last four years, with a budget amounting to USD 4 million, of which USD 1 million will come from a UNDP fund, and the rest USD 3 millions from the Ministry of Science and Technology. S&T envoys will be dispatched to some 400 counties in 15 provinces, in an attempt to support the formulation of relevant policies, and help farmers and rural technicians to establish cooperative ties with private sectors. They are also supposed to introduce funds, technologies, and advanced managerial knowhows to the rural areas, in an effort to promote the sustainable development there.

### Priorities for Future China-UK S&T cooperation

The fourth session of China-UK joint S&T committee meeting was recently held in Beijing. A range of hot topics was defined as priority areas, including clean and renewable energy (including clean coal), biomedicine and modernization of traditional medicine, climate change, environment and sustainable development, nanometer and material science, infectious diseases, and space technology. Both sides agreed to set up focal points for each priority area.

SHANG Yong, Chinese Vice Minister of Science and Technology said that the Chinese government has proposed a goal to be part of innovation oriented countries in a time frame of 15 years, with a line of effective measures, including increasing S&T oriented investment, nurturing innovation oriented personnel, improving scientific infrastructures, and encouraging industrial innovations and making it a mainstream of innovation. China has made both energy and environment priorities in its medium and long term S&T planning, in an attempt to change the existing economic growth modalities, using S&T advancement

and innovation, and build a resource efficient and environment friendly society.

Both sides agreed to make the following the objectives for the near term cooperation between China and UK, including flood prevention and control, energy, and feasibility study of near-zero emission through carbon capture and landfill.

### Human Chromosome 3 Sequenced and Analyzed

A study team, made up of scientists from the United States, China, and Germany, have completed DNA sequencing of human chromosome 3, and associated analysis. The finding, published in the April 27, 2006 issue of the journal *Nature*, makes one of the largest chromosomes analyzed by the International Human Genome Sequencing Consortium.

Chromosome 3 takes up one fifteenth of the total human genome, with 199 million nucleotides. Chromosome 3 has since the mid-1990s become a "hot research spot" for its high concentration of genes involving cancers. Scientists from University of Texas Health Science Center at San Antonio, the Human Genome Sequencing Center of Baylor College of Medicine in Texas, University of Washington Genome Center, Max Planck Institute for Molecular Genetics among many others have rendered important contributions.

Chinese scientists chaired an international meeting for human genome sequencing held in August 2001, and completed the sequence charts and associated analysis of the terminal part of the short arm of chromosome 3, or the so-called "Beijing area" on August 26 in the same year. The efforts created an important ground for the subsequent completion of a full chromosome 3 chart.

Experts who involved in the study expressed that a number of 'firsts' were created in the sequencing, including the longest nucleotide sequence so far achieved in biogenomes, with only two blanks left in the chromosome; the lowest section repetition, a

major feature in the evolution of human genome; and most protein genes (1600) found on a single chromosome.

### Hybrid Rice Father Elected Foreign Associate

The election result of foreign associates for the US National Academy of Sciences was unveiled at 9 p.m. April 25, 2006 Beijing time. YUAN Longping, a world renowned hybrid rice expert and academician of the Chinese Academy of Engineering, was elected a foreign associate of the US National Academy of Sciences, and become the first Chinese scientist from the agricultural community credited with the honor.

At the beginning of the century, the hybrid rice technology developed by YUAN has prosperously used by many countries and regions in Asia and Africa, and become a 'fortune star' for addressing the world food security issues, and raising farmers' income. Up to date, the hybrid rice has grown over some 6 billion mu (1 mu= 0.0667 hectare) of land in China on a combined basis, with an increased yield of 600 billion kilograms. China's hybrid rice has found successful applications in more than 40 countries, including Vietnam, the Philippines, India, and Sri Lanka, with a growing area up to 1.5 million hectares.

YUAN wishes that the growing area of his hybrid rice be raised from current 10% to future 20% in the world. This will turn current 1.5 million hectares of overseas growing area into 15 million hectares, with an additional yield of 30 million tons, calculating on an increase of 2 tons per hectare.

**RESEARCH AND  
DEVELOPMENT**

### 'Chinese Brain' for Generators

A signing ceremony was recently held in Beijing for a demonstration project that will produce two 600,000-kilowatt critical generators, the first of its kind

in the country, for the Zhuanghe Power Plant.

Beijing Guodian Zhishen Control Tech Co. Ltd., the manufacturer of the generators, has developed a proprietary EDPF system, based on importing, digestion, and absorption of advanced foreign technologies. The novel system has found applications in over 400 domestic coal burning generators. The localization of the system not only raises China's proprietary level of automatic control system for large projects, but also meets the sophisticated automation and intelligence needs of major construction projects. The innovation has also led to a noticeable reduction of operation and maintenance costs. The homemade automatic control system offers a reduced investment by 30%, compared with the imported one. The proprietary design also cuts down the cost for component and parts to one tenth that of the imported.

### Chinese Made Vary Large Crude Carrier

On April 27, 2006, a vary large crude carrier (VLCC) at the 300,000-ton level, designed and developed by the Marine Design and Research Institute of China, passed an approval check. With a length of 330m, and a width 29.8m, the tanker is of a draught up to 22.0m, and a carrying capacity of 308,000 tons. The tanker is designed with an optimized propulsion system, using advanced computational liquid dynamics. Together with an optimized mainframe and associated equipment, the new tanker presents a greatly raised speed and economic performance. To ensure an enhanced safety, a full-life process is introduced in the design, which takes into account the maximum service life of VLCC. The tanker also produces a range of internationally advanced indicators, including fuel consumption, cruising speed, carrying capacity, and costs.

### Large CFB Boiler into Operation

A 480t/h circulating fluidized bed boiler, developed by Chinese engineers, recently passed an approval check in Beijing, after one-year trial operation. The

proprietary boiler makes one of the most applicable environment friendly coal-burning system, enjoying a large volume and higher parameters, with a greatly reduced pollutants emission.

The boiler is manufactured by the Wuxi Huaguang Boiler Co. Ltd., using clean coal technology developed by the Institute of Engineering Thermophysics, a part of the Chinese Academy of Sciences. Engineers employed a range of technology innovations in designing the boilers, including a heat insulation cyclone separator in snail shape, vertical yielding alignments in the water cooling friction proof structures, large-caliber built-in adverse current scene, horizontal cold board, large-caliber high speed secondary wind nozzle, special coal feeder, and a technology freeing the boiler from using blowers, direct bottom emission, and cylinder dreg cooling. Some of the technologies have obtained national patent grants.

In March 2005, the new system was installed in a 150-MW gas turbine at the Huadian Wuda Thermoelectricity Company in Inner Mongolia, and completed its performance and environmental protection tests in September. The commercial operation and test results show that the technological performance of the boiler has reached an internationally advanced level.

### Chinese Made Levitated Train

On April 30, China's first proprietary levitated train at a low-middle speed level called a success for its test run at a base designed for such purpose, affiliated to Southwest University in Qingchengshan, Chengdu. With a length of 11.2m, a width of 2.6m, and height of 3.3m, the 18-ton levitated train can carry 60 passengers. The train, working on the principle of magnetic levitation, can be driven either in an automatic mode or in a driver control mode. The train offers a levitation ranging between 8 to 10 mm in the run, with a maximum speed from 80 to 160 km per hour. Compared with its counterpart that runs at a higher speed of 500km per hour, the levitated train at

the low-middle speed level is desirable for inner city rail commuting.

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