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INTERNATIONAL COOPERATION

WHO Financing Health Projects in China

At a ceremony held for 2010-2011 planning, co-sponsored by the Chinese Ministry of Health and the World Health Organization (WHO), WHO pledged to fund 75 public health projects in China, with a sum worth USD 27 million. Dr. Michael John O'Leary, WHO China Representative, said that WHO will support a range of public health projects initiated by Chinese authorities in the areas of responding to emergency public health events, epidemics, food safety, chronic diseases prevention and control, across some 20 provinces and autonomous regions in the country, in line with the bi-annual plan under WHO-China

Country Cooperation Strategy (2008-2013). So far the following areas have been defined for WHO support: earthquake and its implications on infectious diseases, post earthquake trauma management, response to emergency events, early warning of infectious diseases, and emergency official training.

According to Dr. Michael John O'Leary, some projects have already entered implementation phases, including legislations on public health service and associated cost-effective study, regulatory mechanisms for public hospitals and third party arbitration of medical malpractice disputes, generic drug appraisal, and comparative study of legal control of marketable drugs between China and US. In addition, some efforts have been made to launch the following studies in the near future: smoking and food risks in Ningxia; chronic disease prevention and associated education in the rural areas of Guizhou; aging problems and fair health interventions in Jiangsu; arsenic poisoning prevention and control, and water quality monitoring in the rural areas in Inner Mongolia; and low frequency electromagnetic field related health risks in Shanghai.

Screening Diabetes Genes

Chinese Diabetes Society and Sanofi-Aventis announced on March 2, 2010 that two organizations will work together to study type 2 diabetes in China, in an attempt to sort out the genes susceptible to diabetes, and explore possible mechanisms to introduce healthy lifestyle and prevent metabolic syndrome related cardiovascular attacks. Sanofi-Aventis promised to fund the initiative with an amount worth RMB 20 million, for DNA and lifestyle intervention related studies. DNA part will investigate some 12,000 diabetes patients and controls, providing guidance for developing type 2 diabetes treatment and prevention drugs. Metabolic syndrome panel plans to work on some 7,000 patients, trying to understand the possible measures that can be taken to intervene patients' lifestyle and associated effects.

RESEARCH AND DEVELOPMENT

Nanochip for Gastrointestinal Tumors

Prof. LI Yan, a doctoral tutor at Zhongnan Hospital Tumor Division, part of Wuhan University, announced on February 28, 2010 that he and coworkers have developed a nanochip that can be applied to diagnose gastrointestinal tumors in their earlier stage, and monitor long term therapeutic effects.

Researchers have found since 2005 that half of the hospitalized 329 gastrointestinal tumor patients were not diagnosed in their early stage. They were told they had an advanced

gastrointestinal tumor when diagnosed. Prof. LI and coworkers found through a rat model that a nanoprobe can be employed to tell the accurate position of tumors, and see their activities by fluorescent intensity. The technique facilitates earlier diagnosis of tumors, selection of desired therapies, and monitoring the therapeutic effects and possible recurrence.

Human Metagenomics Harvests

Human metagenomics project, financed by the European Union, has established a human gut microbial gene catalogue. Beijing Genomics Institute (Shenzhen) was contracted to make the sequencing. Researchers analyzed human gut microbial samples collected from 124 Europeans, and sequenced out 3.3 million non-redundant microbial genes. The gene set, 150 times larger than the 20,000 genes possessed by humans, contains an overwhelming majority of the prevalent (more frequent) microbial genes of the cohort, and probably includes a large proportion of the prevalent human intestinal microbial genes. The genes have covered most known human gut microbial genes, though most of them remain unknown to humans. Researchers said the entire cohort harbors between 1,000 and 1,150 prevalent bacterial species, and each individual would have at least 160 such species. In addition, the differences between the microbes are smaller than estimated before, and 40% of the microbes can be found in half of the study targets. The finding was published in the March 4, 2010 issue of *Nature*.

Improved Intestine Diseases Diagnosis

Prof. GE Zhizheng at Shanghai Renji Hospital found through a large scale control study that one can raise the complete intestine examination rate to 83.8% by delivering the capsule endoscopy into the empty stomached patient's duodenum using a traditional gastroscope. The innovative technique does not affect the quality of the images obtained using the technique, nor the movement of intestines. The raised complete intestine examination rate is meaningful for improving the precision of diagnosis, with a raised success rate from 41.7% without interference to current 60%. The finding appeared in a recent issue of *Digestive Endoscopy* published in the United States. Prof. GE and coworkers have also developed an innovative technique to judge if the double air-pocket intestinal endoscopy should be inserted from the mouth or from the rear taking advantage of the critical time index, the first instance in the world, with success rate reaching 100%. The finding was published in the recent issue of *Digestive Endoscopy* published in Germany.

New Spider Species Found in Vietnam



Chinese scientists studying the diversity of canopy spiders in Cat Ba.

LI Shuqiang and coworkers at CAS Institute of Zoology reported 21 newly found spiders in the recent issue of *Animal Classifications*. Chinese scientists have found through more than one year continuous investigations 23 Coelotes spiders from 3 national parks in the northern part of Vietnam. 21 of them are newly found species. The rest of two species were just reported for their discovery in recent years.

LI and coworkers made the investigation mainly in three national forest parks in Cat Ba, Cuc Phuong, and Tam Dao. During the period from April 2007 to August 2008, researchers collected 56,604 head of spiders using spraying and trapping techniques. Of the gathered species, 15,185 were adult spiders from 33 families. The 21 newly reported species came from one subfamily.

First Marine Wind Farm

On February 27, 2010, Chinese engineers completed the installation of the last unit of 34 wind turbines over a marine area near the East Sea Bridge in Shanghai. The marine wind farm, with a capacity of 100,000 kilowatts, is the first of its kind in the country, and in Asia as well. The proprietary marine wind farm is made up of 34 wind turbines enjoying the top output as an individual unit. With an investment worth 2.365 billion, the wind farm is designed with 2,624 annual utilization hours of installed capacity, and 267 million kilowatt

hours of grid electricity.

The wind farm sits in a marine area 1 -4 km from the East Sea Bridge in the east, and 8 -13 km from the shorelines of the Pudong New Area, with an averaged water depth at 10m, and annual mean wind speed of 8.4m per second at a height of 90m above the sea surface. Researchers developed the innovative high peg bearing foundation design, the first of its instance in the world, and a new technique to load the wind turbine as a whole, the first of its kind in the country. A proprietary buffer system featured with accurate positioning and soft landing, developed by Chinese engineers, found a successful solution to addressing the turbine installation under rough sea conditions.

In addition to its strong base design, the wind turbines at the farm are able to switch oar and speed on its own. Equipped with a wind speed detector, each wind turbine can switch oar and speed according to wind direction prevailed, avoiding the strongest windward winds. Vanes can also be automatically readjusted on their own to an optimized angle, and would cease to generate electricity when wind speed exceeding 20m per second, turning the veins to the least windward side.

As of 24 h, February 26, 2010, 3 wind turbines at the Farm have successfully produced electricity and become part of the local power grid, with 7.35 million kilowatt hours of electricity generated on a combined basis.

NEWS BRIEFS

Milky Way II Supercomputer

Prof. WEI Shaojun, deputy chief designer of a major national S&T project established to develop core electronic components, high-end generic chips, and generic computer programs, said at a briefing meeting that China will build a proprietary petaflop supercomputer, or Milky Way II, on FT-1500CPU in 2011.

WEI said the project is established to develop two components (core electronic components and generic software), and one chip (high-end generic chips). Researchers are currently working on multi-core CPU that can be used by high performance computers, and built-in CPU desired for computer safety. In the area of generic computer programs, researchers will focus on applicable generic computer programs, including operating system, database, office program, mediumware, and major information program. China strives to establish a proprietary R&D system for high-end generic chips and generic computer programs, and to realize the associated industrialization in 2020. Meanwhile, researchers are working on built-in programs for 3G mobile phones and associated application and industrialization. So far some substantive progresses have been achieved

in built-in mobile programs and online operating system.

Tiangong I Ready in 2011

QI Faren, an authoritative Chinese space expert disclosed on March 3, 2010 that China will launch its first target spacecraft, or Tiangong I (a palace in the heaven) in 2011, making it be docked with Shenzhou 8, 9, and 10 capsules, before being transformed into a short term manned space lab.

According to QI, the number one key technology is extra-vehicular activity. Shenzhou 7 capsule has done it successfully. The next key technology to be accomplished is docking. Tiangong I will be docked with Shenzhou 8, 9, and 10 capsules in a time of two years. The third technology to be ventured is providing fuel, air, water and food supply to the space lab. The last key technology to be developed in the near future is the so-called Bioregenerative Life Support Systems. QI said Shenzhou 8 will be an unmanned spacecraft, though its followers, including Shenzhou 9 and 10 will be manned, aboard with two or three astronauts.

New Carrier Rocket on the Way

A senior official, at China Academy of Carrier Rocket Technology, recently told reporters that China is currently working on the prototype of its newest carrier rocket, in an attempt to make its maiden flight in 2014 on time. The new rocket, or CZV, is 60.5m long, designed with a maximum take-off weight of 675 tons, and a take-off thrust at 835 tons. Having a cowlings 5.2m across, and a 10-ton carrying capacity for geosynchronous transit orbit, the new carrier rocket enjoys numerous merits, including improved reliability, low cost, poison and pollution free, great adaptability, fine safety, and digital design, with its major performance indicators reaching the mainstream international level.

Researchers are optimizing the technical and experimental plans for the prototype. Its first component, a 5-m oil tank base has completed its construction.

Largest Carrier Rocket Homes in Tianjin

China's largest new generation carrier rocket will find its home in the west zone of Tianjin Economic and Technological Development Park. The new manufacturing center, designed for a 1 million square meters of floor space, will be built with a budget worth RMB 10 billion.

The new center, supposed to produce 12 new generation carrier rockets a year, is made up of three functional areas for R&D, military and civic integration, and service respectively. The R&D area will be built in two phases. Phase I, planning to produce 200,000 square

meters of floor space, will be completed in 2011. Phase II will be completed with 300,000 square meters of floor space. The entire R&D area, once completed, will be able to produce 12 new generation carrier rockets a year. As of February 2010, 24 individual structures have been put under construction. Of them 6 major working sites, including welding and assembly, general assembly and test, and rocket dynamic test tower, have been completed of construction.

New Remote Sensing Satellite Launched

At 1255, March 5, 2010 (Beijing time), China successfully blasted off its ninth remote sensing satellite aboard a CZIV-C launch vehicle, from the Jiuquan Satellite Launch Center. The new satellite will provide a range of services for numerous areas, including scientific experiment, land resources survey, crop yield estimation, and disaster prevention and preparedness, playing a positive role in the national economic development.

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