

N0.588

CHINA SCIENCE AND TECHNOLOGY

NEWSLETTER

The Ministry of Science and Technology
People's Republic of China

N0.588

July 10, 2010

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SPECIAL ISSUE

Ten Major Health Objectives

A national high level health forum, second of its kind co-sponsored by the Ministry of Science and Technology, Ministry of Health, Ministry of Education, the Chinese Academy of Sciences, the Chinese Academy of Engineering, and State Food and Drug Administration, was held on July 8, 2010 in Beijing. A new drug fair was also staged on the same day. WAN Gang, Chinese Minister of Science and Technology, proposed ten major tasks for health related science and technology activities at the opening ceremony: 1) strengthen the R&D of diseases prevention and control technologies and associated diffusion, substantively raising China's capability of

preventing, diagnosing, and treating major diseases, major infectious diseases, and common diseases; 2) strengthen new drug innovations and technological upgrade of major drugs, making major drugs more effective, and building up large pharmaceuticals with international competitiveness; 3) strengthen drug safety, establishing a technical system to monitor the entire process of drug safety from lab to patients; 4) strengthen food safety, establishing a technical system to monitor food safety from croplands to dinner table, significantly raising the level of food safety; 5) accelerate the localization of medical instruments, facilitating proprietary innovative products into domestic and international markets, nurturing high tech businesses enjoying the sustainable proprietary R&D capability; 6) strengthen the R&D of population safety technologies and associated diffusion, providing technical support to population control, reducing birth defects, further cutting down the mortality of pregnancy and infants, and enhancing people's reproduction health; 7) stage integrated demonstrations of grassroots medical care services, substantively raising the S&T level of grassroots medical care services. 8) accelerate the modernization and internationalization processes of traditional Chinese medicine, maintaining and strengthening China's position as a world leader in the area of traditional Chinese medicine; 9) develop and diffuse the technologies desirable for keeping fit; 10) initiate a 'public health awareness action', screening out and diffusing a range of advanced and proven technologies to improve people's health, diffusing health knowledge and practice through TV, radio, newspapers, and forums, and raising people's diseases prevention capability.

WAN said, of the 17 major S&T projects initiated during the 11th Five-year plan period (2006-2010), 2 were established to work on major new drug innovations and major infectious diseases prevention and control. MOST has made an investment worth RMB 3 billion in the health component under National 863 Program. In the National 973 Program, the expenditures consumed by the life science projects hit 30% as a proportion of the total expenditures consumed by the program.

INTERNATIONAL COOPERATION

WAN Attended TWOWS

The 4th Third World Organization for Women in Science (TWOWS) Conference, co-sponsored by the Chinese Academy of Sciences, the Third World Academy of Sciences, and TWOWS, lifted its curtain on June 27, 2010 in Beijing. An international seminar was also staged for the purpose. WAN Gang, Chinese Minister of Science and Technology spoke at the opening ceremony. WAN briefed the meeting of the national S&T programs that have been participated by Chinese women, and the national S&T awards they have been honored with. WAN said that women have taken up a third of the S&T personnel registered in the country, and is an important force that China has to rely on in building an innovative country. In 2006, the Chinese government promulgated the Outline of China's Medium and Long Term S&T Development Planning, which

creates a platform for women to be part of scientific research, S&T innovation, and technical services, allowing more and more women to be part of national S&T programs and projects. In recent years, the Chinese government has initiated a range of special scientific research projects tailored to the women's needs for development. The advancement of science and technology has also created a stage allowing women to show their talents, desirable for eradicating the discriminations against women in all forums, and creating a social environment advocating gender equality on a scientific and civilized basis. China's practice provides the third world countries a useful experience.

China-US S&T Personnel Exchanges in 2010

2010 China-US S&T personnel exchanges program, co-sponsored by the Chinese Ministry of Science and Technology, the Chinese Academy of Sciences, Chinese National Natural Science Foundation, and US National Science Foundation, and implemented by China Science and Technology Exchange Center, was launched on June 14, 2010 in Beijing. 40 American post-graduate students, jointly selected by Chinese and American sides based on their performance, started the reorientation in the first week, during which they will study the Chinese language and culture, familiarizing themselves with China's S&T, political, and economic systems, foreign policies, history, and social customs, and visiting Tsinghua University and high tech parks. After the reorientation, American students will work on their 7-week collaborative researches at Tsinghua University, Peking University, research institutes, and labs.

China-US S&T personnel exchanges program, lasting for 8 weeks, was created in 2004 to allow the accomplished American post-graduate students to work with Chinese researchers on selected topics at Chinese universities, research institutes, and labs. The program makes a new channel to facilitate the exchanges and cooperation between young scientists in the two countries. 199 American students have conducted fruitful collaborative researches with Chinese researchers in the past 6 years.

RESEARCH AND DEVELOPMENT

Hydrothermal Vent and Cold Seep Data Collector

Scientists, at the Lab of Marine Geology and Environment under the Chinese Academy of Sciences, has successfully developed an instrument able to measure the temperature, salinity, and pressure of deep sea hydrothermal vents and cold seeps. The instrument has been proved effective in a sea based test launched recently. The subsurface buoy is able to descend to the target hydrothermal vent or cold seep in line with the preset program, or under an external instruction, measuring temperature, salinity, and pressure at deep sea hydrothermal vent and

could seep using the aboard sensors, and sending the collected data back to the control center.

Not long ago, researchers tested the instruments in a sea area near Sanya. The instrument, reaching a depth of 1300m over a groove near the Xisha Island, was tested for 5 indicators, including balance, descending depth, positioning, data transmission, and ascending. The test shows that the subsurface buoy enjoys a fine voice communication, high positioning accuracy, reliable data, strong utilities, and environment adaptability.

Minimally Invasive Surgery Robot

MicroHand A, China's first minimally invasive surgery robot, passed its approval test on July 4, 2010. Jointly developed by Tianjin University, Nankai University, and Tianjin Medical University General Hospital under the financing of National 863 Program and National Outstanding Young Scientists Foundation, the new robot system was developed to perform minimal access surgery over the abdomen section, enjoying a range of technical innovations and inventions. For example, a small 4-DOF surgery tool derived from the project is able to do the stitching and knotting job. The multi-DOF wire transmission technology makes the operating hands lighter in weight. The space isomerism based projection model makes the remote sensing operation, both master and auxiliary, possible. The simulated environment allows the operation plan to enjoy the feedbacks from the simulated operation. The double route orthogonal polarization based spectrophotometry produces a 3-D visual effect for minimally invasive surgery. The project has resulted in 10 invention patent applications (4 grants), and more than 10 papers published in domestic and international journals.

Deflection Measuring Vehicle

A proprietary deflection measuring vehicle, jointly developed by Wuhan University Zhuoyue S&T Corp. and Wuhan Longan Group, made its debut on July 6, 2010 in Wuhan. Thanks to more than 1 year painstaking efforts, researchers mastered the key technologies needed to measure the road deflections in a prompt manner, creatively utilizing a range of theories and technologies, including multi-level elasticity, laser measurement, space positioning, inertia measurement, and digital signal processing. Based on the principle of laser Doppler speed measurement, the system is designed to measure the deflection at different sites using a range of laser Doppler sensors aboard the vehicle, before retrieving the dynamic deflections of corresponding sites based on the mathematical model of elastic mechanics. Under a normal traffic condition, the system is able to measure the deflection at a speed of 15-80km/h without affecting the traffic flows, with a raised efficiency by more than 30 times, compared with the traditional deflection measuring equipment.

NEWS BRIEFS

Geographic Information Database for Three-Gorge Dam Area

An integrated space information platform for the Three-Gorge Dam area, jointly built by the State Bureau of Surveying and Mapping, Hubei Provincial Government, and Chongqing Municipal Government, passed experts' approval, and was put into operation on July 2, 2010 in Chongqing. The platform has collected the basic geographic information and the information on ecology, population, resources, economy, and society of 30 prefectures and counties within the dam area (22 in Chongqing and, 8 in Hubei), covering an area of 56,700 square kilometers. With a data volume of more than 2TB, the database has collected the satellite images covering an area of 74,700 square kilometers and aerial photographs of 13,000 square kilometers, and established a range of sub-databases concerning natural resources, environment/ecology, disasters/catastrophe, society, economy, and infrastructure.

The platform allows the information be shared between the prefectures and counties within the dam area. Meanwhile, the platform, equipped with display and statistical analysis functions, makes comprehensive surveys on the economic and social development, natural resources, and ecological environment of the dam area. Chongqing Municipal Government has developed 6 application systems based on the platform, including a macro decision making system, Wanzhou geological disasters monitoring and control system, Changshou removing and industrial planning information management system, Three-Gorge Dam geological disasters prevention and control information system, Yichang tourism service information system, and Yichang urban planning information system, providing detailed and reliable basic information for urban and rural area planning, geological disasters prevention and control, environmental protection and monitoring, old town transformation, disaster prevention and preparedness, emergency and rescue, e-government, and digital city.

Largest Offshore Wind Mills into Operation

Shanghai East Sea Bridge 100-megawatt offshore wind turbines, the largest of its kind in the country, were put into operation and became part of the local power grid on July 6, 2010. Sitting on the east side of the East Sea Bridge, the proprietary 34 3-megawatt wind turbines are designed with an installed capacity of 102 megawatts.

According to a briefing, Phase II of the marine wind mill project (100,000 kilowatt level) has been approved to build the individual units with a larger capacity and more advanced technology. In addition, Shanghai plans to build 4 more marine wind mills, with 100,000 kilowatt capacity for Fengxian, 400,000 kilowatt for Pudong, 300,000 kilowatt for Fengxian, and 200,000 kilowatt for Hengsha, with the former two having already entered the pre-phase stage, and the latter two under the medium and long term planning. When completed, the wind mills will make Shanghai's total installed wind capacity reach 1.1 million kilowatts.

The electricity generated from the East Sea Bridge wind mills will be first fed to the Shanghai Expo area. The operation of the marine wind mills will save Shanghai 100,000 tons of coal a year, with an annual CO₂ emission reduction by 200,000 tons.

Health Knowledge Database

China Health Promotion Foundation, China Health Management Association, and NEUSOFT jointly inked on July 2, 2010 a strategic collaboration accord in Beijing. The three parties will jointly establish a health management knowledge database, taking advantage of their respective strength in the area, in an attempt to create a health service model tailored to Chinese situation.

According to the accord, the three parties will jointly create an authoritative health management knowledge (physical exam) database, a database containing standardized health information, and a health information platform, in a move to meet the sector's and industry's changing needs in the area. Meanwhile, they will diffuse the proven technologies of health management (physical exam) through pilot projects, exploring the new ways and approaches to manage chronic diseases in a neighborhood environment. The three parties also plan to stage training activities, allowing professionals to gain new health management knowledge, skills, and techniques, and bringing out more qualified professionals.

New Round North Pole Expedition

Chinese expedition team launched its fourth North Pole expedition on July 1, 2010 aboard a Snow Dragon boat. During the expedition, Chinese scientists will mainly work on two topics: fast changing sea ice circling the North Pole and associated mechanism, and the response of the North Pole marine ecosystem to the fast changing sea ice. The expedition team is made up of the scientists from more than 20 domestic research institutes, and 6 foreign scientists invited from the United States, France, Estonia, and the Republic of Korea, or 122 members in total. The expedition team will return to Shanghai on September 23, 2010, after an 85-day journey, the longest trip with the largest team in China's North Pole expedition history.

Comments or inquiries on editorial matters or Newsletter content should be directed to:

Department of International Cooperation, MOST 15B, Fuxing Road , Beijing 100862, PR China E-mail:hzs_dydc@most.cn Fax: (8610) 58881364

<http://www.most.gov.cn>