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SPECIAL ISSUES

10 Energy Saving Actions

The National Development and Reform Commission, in collaboration with the CPC Publicity Department, Ministry of Finance, Ministry of Environmental Protection, and Ministry of Education, recently released a plan to launch a range of energy efficiency and emission reduction actions during the 12th Five-year period

(2011-2015). The Plan points out that China will stage 10 actions that will deal with energy efficiency and emission reduction at the level of families, teenagers, businesses, schools, military barracks, rural areas, government agencies, popular science activities, and news media. The ten special actions will be launched in different forms, including role model display, themes events, exhibitions, job creation, and proposals making, in an attempt to secure the involvement of the entire society in energy efficiency and emission reduction activities, advocating a healthy way of production, consumption, and life featured with conservation, green, and low-carbon.

According to the Plan, China will initiate a range of activities that release the “energy saving tool kits” to the public, promote the use of energy saving technology and findings, stage energy efficiency and emission reduction demonstrations, and establish service systems for the purpose.

The series activities will focus on the common technologies applied to enhance the universal capacity building of energy efficiency and emission reduction, developing series tools for raising such capability, and diffusing/displaying universal applications. Efforts will also be made to work on the spin-off and application of S&T findings in the area, enhancing the public awareness of energy saving and emission reduction, and building an agreeable aura for energy efficiency and emission reduction.

CDC 100% Direct Reporting of Infectious Diseases

DENG Haihua, Chinese Ministry of Health spokesperson, said recently that 100% of Chinese disease prevention and control institutions, 98% of medical institutions at the county level or above, and 87% of township hospitals have achieved direct online reporting of infectious diseases.

China has basically formed up a disease prevention and control system built on four levels (national, provincial, prefectural, and county), supported by a range of grassroots hospitals and village clinics.

China has also established a three-tiered (national, provincial, prefectural) public health emergency information and decision-making system, along with a range of emergency response plans for pandemic influenza, plague, natural disasters, nuclear accidents among others.

China has established a food safety system in line with China’s own situation, supported by some 1,900 national standards, 1,200 local standards, and 3,100

industrial standards for food, food additives, and food products, allowing an enhanced supervision network extended from the central, provincial, municipal, and county level to the rural areas.

As of 2010, there were 3,025 maternal and child care institutions in China. During the period of 2005-2010, the population working for maternal and child care raised from 188,000 to 245,000 in number, and obstetrics and gynecology doctors from 224,000 to 360,000. In 2011, China invested RMB 4.3 billion in constructing maternal and child care infrastructures in the central and western regions. Community health services, township hospitals, and village clinics are all equipped with full or part-time maternal and child care staff.

Nurturing High Caliber Animation Talents

A training program, jointly initiated by the Ministry of Education and the Ministry of Culture to nurture high caliber animation talents, was officially kicked off on February 8, 2012 in Beijing. The program is designed to create innovative animation talents training models, improving the quality of animation personnel training. The joint training program will be implemented at Beijing Normal University, Communication University of China, and Beijing Film Academy. The training will be conducted in varieties of forms, including joint training, tutor training, small class training, studio training, being part of film and television production, and mutual credits recognition. Efforts will also be made to open dual-degree training courses, promoting the reform of animation teaching, and exploring new approaches for nurturing high caliber animation talents.

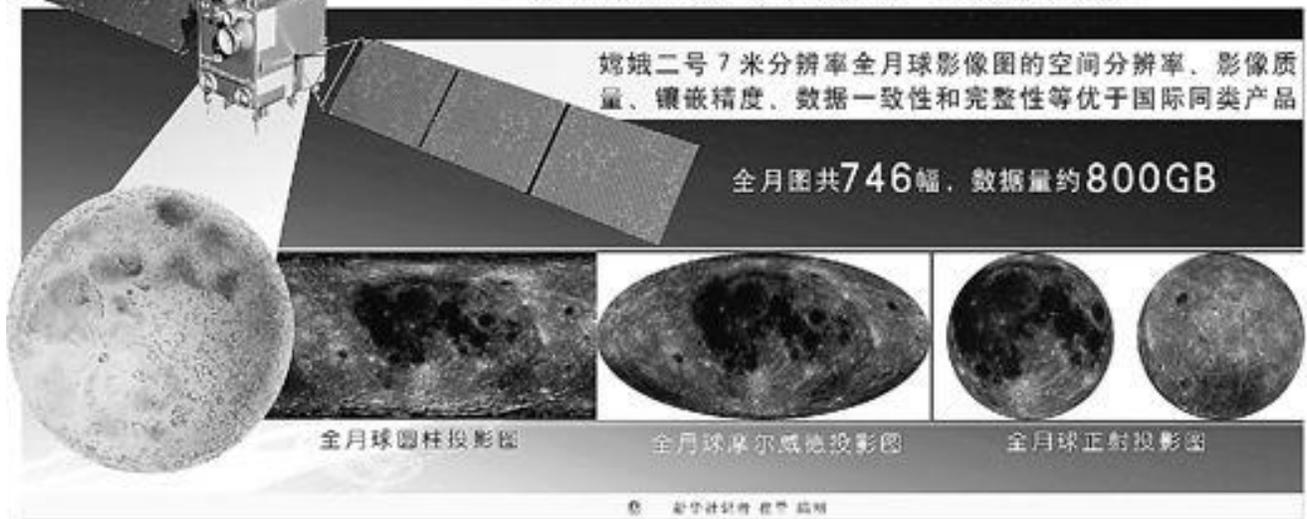
RESEARCH AND DEVELOPMENT

China Released Clearest Full Moon Map

The State Administration of Science, Technology and Industry for National Defense released to the public on February 6, 2012 a full moon map enjoying a 100% coverage of the lunar surface at a 7m resolution. The full moon map is made up of 746 images in 800GB. Spliced together at a scale of 1:80000, the lunar map reaches the size of a standard football field. Meanwhile, researchers produced a lunar image atlas and a lunar data atlas at a 50-meter resolution, along with a 3D full moon map. Spacecraft Chang'e II that has been sending lunar images to the earth station is currently staying at the L2 point, working on space environment probes and technical tests.

2月6日 国防科工局发布嫦娥二号月球探测器获得的 7 米分辨率全月球影像图

■ 这是我国探月工程取得的又一重大科技成果



Comparing with the 120-m resolution full moon map derived from Chang'e I, the one from Chang'e II rendered a resolution up to 7 m, or 17 times higher in resolution, allowing people to see the fine details of crater edges on the moon surface, and a more detailed moon morphology.

For example, the Tycho impact crater on the front surface is 5 km deep and 85 km across, with a central peak standing in the middle at an elevation of 1.6 km. The crater's 1500-kilometer radiating lines left by NEO impacts makes a very attractive scenery even can be viewed by naked eye from the Earth. On the new 7m-resolution lunar surface map, one can easily see rock cracks on the top of the central peak and the one at the bottom, including the collapsed part and individual rocks on the top of crater edges.

On the opposite side of the moon sit a satellite crater of the Wiener crater that is 47 km across. The 7m-resolution lunar map depicts the internal structural details of the crater, allowing people to distinguish the crater bottom from the edge rocks, and even to see the traces of rolling stones on the southeastern walls of the crater.

According to a briefing, like the full moon map derived from Chang'e I that has been made available to the public, the 7-meter resolution moon map data collected by Chang'e II will also be made available to international scientific communities.

New Leprosy Susceptibility Gene Found

The sustained investigation conducted by a team led by ZHANG Furen, head of Shandong Institute of Dermatology and STD, has led to the discovery of 10 leprosy susceptibility genes. The findings allow a drop of blood to preliminarily determine if the person is a susceptible high-risk individual, making screening leprosy susceptible individuals using genetic means possible.

According to a briefing, ZHANG and coworkers recently spotted the 10th leprosy susceptibility gene, which enhances the screening technique built on the nine susceptibility genes previously found by the team, creating a ground for the primary prevention of leprosy in the future. The susceptibility genes were screened from more than 20,000 leprosy cases through a sustained control study.

The findings derived from the study updated people's previous knowledge of leprosy: both genetic factors and leprosy bacteria are the causes of leprosy diseases. ZHANG said the 10 leprosy susceptibility genes discovered in the course of study are associated with human innate immunology, which means people carrying the genes are more likely to have a leprosy diseases due to the inherent immune defects, though that does not rule out the possibility that people having no such genes would not have the disease.

Scale Gasification Technology Breaks Foreign Monopoly

A multi-nozzle opposed coal slurry gasification technology, jointly developed by East China University of Science and Technology, Yanzhou Mining Group, and China Tianchen Chemical Engineering, recently passed an on-site check. The technology has been put into industrial application for a long and continuous operation.

The proprietary technology, enjoying numerous merits, including safe performance, low operating cost, and scale production, has found application at 72 gasifiers in 25 domestic or overseas plants. Of them, the gasifier having a daily feeding capacity up to 2,000 tons of coal or above accounted for 39 in number. 5 gasifiers at Jiangsu Linggu and Shenhua Ningmei have been running smoothly since the application. In 2008, the technology developer issued a technology licensing to Valero Energy in the United States, the first instance that China transfers its scale coal gasification technology to a developed country.

In a full load operation, the device registered a gasification performance exceeding the check indicators. Comparing with the coal slurry gasification technologies from other domestic or overseas developers, the multi-nozzle technology enjoys an

enhanced gasification, a raised carbon conversion rate, and advanced technical indicators. For example, comparing with the imported technology also applied at Shenhua Ningmei, the novel technology raised effective gas composition by 3.1%, with a reduced oxygen consumption by 11.4%, a declined coal consumption by 2.1%, and a carbon conversion rate up to 99.2%.

Track Robot for Substation Inspection

A track robot developed by Chinese Academy of Sciences Shenyang Institute of Automation for substation inspection, the first of its kind in the country, applauded for a successful trial operation at a 220 kV substation in Anshan. The robot, made up of seven sub-systems for mobility, carrier communication, audio sampling, video observation, motion control, infrared obstacle avoidance, and frost and snow removal, is designed to work under an operating temperature range between -25°C and 50°C, with a dust and rain proof capability reaching class IP55. The robot system can be instructed to perform an uninterrupted round-o'clock inspection of substation equipment. The robot would report the failure of substation equipment to the control center in a real-time manner, in addition to the function of storing the inspection data for a long period of time for future review.

The robot, enjoying numerous merits, including fast mobility, accurate positioning, low cost, and round-o'clock operation, is desirable for applications in cold areas.

NEWS BRIEFS

Three New Launch Vehicle Models

YU Menglun, Chinese academician of sciences and a research fellow working for China Academy of Launch Vehicle Technology, disclosed recently that the CZ-V, CZ-VI, and CZ-VII launch vehicles will make their maiden launch in the coming five years. The CZ-V model is designed for non-toxic pollution-free propellants only, with a 25-ton carrying capacity for near-Earth orbit, or a 14-ton for geosynchronous transfer orbit. Model VI is a quick launch vehicle with a carrying capacity no less than 1 ton for sun-synchronous orbit at a height of 700 km. Model VII is able to launch a payload up to 13.5 tons heading for near-Earth orbit, or 5.5 tons for sun-synchronous orbit at a height of 700 km.

YU said China is currently developing the new generation carrier rocket, with a carrying capacity and technology aiming at the world advanced level, or "large"

when describing its most impressive feature, as "large" implies an integrated strength of rocket engine, thrust, production technology, and launch site capability. Meanwhile, China develops its new generation launch vehicle adhering to the principle of "non-toxic, low-cost, high reliability, enhanced adaptability, and fine safety".

Subsurface Buoys Deployed at Prydz Bay

The 28th Chinese Antarctic Expedition Team recently deployed another three subsurface buoys at the Prydz Bay. One such buoy had been deployed at the same bay on December 18 last year. The development marks the completion of subsurface buoys deployment. The buoys are deployed to observe the water exchange patterns at the bay through monitoring seawater temperature, salinity, and currents, in a bid to understand the variation of marine environment at the bay.

The buoy system is made up of floats, ropes, heavy anchor, and aboard observing instruments and equipment. The buoy is also called anchor buoy for it is planted on the seabed by heavy anchor. The area where the four buoys sit is not only a blank area for buoy observation, but is also a site desirable for observing water route exchanges at the bay.

Studying Earth's Climate in Late Mesozoic

Earth's greenhouse climate in the Late Mesozoic and associated environmental evolution, a major project initiated under the National Key Basic Research Development Programs, was kicked off on February 9, 2012 at China University of Geosciences. The study will work on a range of scientific issues, including the reconstruction of Earth's greenhouse paleoclimate, paleoenvironment, and associated evolution in the Late Mesozoic, and unveiling the Earth's greenhouse climate – the processes and mechanisms that contributed to rapid environmental changes. Researchers will focus mainly on the evolution of large continental basins in northeastern China in the late Mesozoic, the reconstruction of the East Asian paleoclimate in the Late Mesozoic, and scientific drilling at the Songliao Basin.

Chinese HLA Lab Won International Accreditation

An HLA laboratory under Suzhou University No.1 Hospital recently won the accreditation of the American Society for Histocompatibility and immunogenetics (ASHI), becoming the first mainland lab recognized by ASHI. As a result, China Bone Marrow Bank is in a position to share its information and data with the bone

marrow registries across the world without "barrier", allowing expanded searches with reduced time and cost.

The lab has also put into operation three other new labs for Donor high-resolution HLA confirmation, diagnostic gene chips market access, and tumor genetic testing and diagnosis. The high-resolution technology applied in one of the labs is able to minimize the rejection rate in the pre-transplant recipient, with a raised successful matching rate to 80%.

The advanced gene sequencing machine in the laboratory can make a comparison between the patient and the donor at 10 sites (previously only six sites), which makes the matching result advanced from the original 2 places after the decimal point to 4-6 places.

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

Tel: (8610)58881360 Fax: (8610) 58881364

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