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# NEWSLETTER

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SPECIAL ISSUES

## New University Science Park Plan

To implement the Outlines for National Medium and Long Term Scientific and Technological Development Planning (2006-2020), the Outlines for National Medium and Long Term

Education Reform and Development Planning (2010-2020), and the Outlines for National Medium and Long Term Human Resources Development Planning (2010-2020), Chinese Ministry of Science and Technology and Ministry of Education have recently released a national university science park development plan for the 12<sup>th</sup> five-year period (2011-2015), in an attempt to sustain the development of university science parks in the new five-year period.

According to the plan, China will have 200 university science parks under a three-tiered management system by 2015. University science parks at the national level will hit 100 in number, with 10 million square meters of floor space at their disposal. Professional service firms stationed at the parks will reach 1,000 in number, and businesses to be incubated 8,000 in number. The 12<sup>th</sup> five-year period will see the graduation of some 5,000 businesses and 100,000 service firms, with 10,000 S&T findings transferred, and 100,000 innovation and entrepreneurship talents trained. Meanwhile, university science parks will build 80 centers for students' tech start-up practice, and establish 3,000 students' tech start-ups.

During the 12<sup>th</sup> five-year period, university science parks at the national level are asked to promote technology transfer and findings spin-offs in advantageous areas, taking advantage of universities' innovation strength, helping faculties and students create tech start-ups, improving services, and fostering innovation and entrepreneurship talents. Meanwhile, efforts will be made to consolidate service resources, accelerating the interactive connection of innovative elements in major industries that are the powerhouse of regional economic development, and fostering industrial clusters, innovation clusters, and strategic emerging industries.

## 670M Tons of Standard Coal Energy to Save

According to an energy conservation plan released on September 7, 2011 by the Chinese Government Network, China will achieve an energy saving by 670 million tons of standard coal during the 12<sup>th</sup> five-year plan period. By 2015, China's energy consumption will hit the level of 0.869 tons of standard coal per RMB 10,000 GDP (in line with the price tag of 2005), expecting a 16 percent drop compared with 1.034 tons in 2010, or 32% down against 1.276 tons in 2005.

The plan says China will confine its chemical oxygen demand and sulfur dioxide emissions to 23.476 million tons and 20.864 million tons, respectively, in 2015, achieving an 8% reduction, compared with 25.517 million tons and 22.678 million tons in 2010. Meanwhile, ammonia and nitrogen oxides emissions will be kept at 2.38 million tons and 20.462 million tons, respectively, or 10% down compared with 2.644 million tons and 22.736 million in 2010.

## INTERNATIONAL COOPERATION

### CAO Met with Dutch Guests



September 1, 2011 - CAO Jianlin, Chinese Vice-Minister of Science and Technology met with Halbe Zijlstra, Dutch Secretary of Education, Culture and Science, and his party in Beijing. Both sides reviewed the close and stable cooperation ties between Chinese and Dutch scientists over the past 30 years, and exchanged views on spurring up the bilateral cooperation and exchanges in the future. After the meeting, CAO and Zijlstra jointly inked a document to renew the accord of bilateral scientific and technological exchanges and cooperation, which accordingly makes the Joint Scientific Thematic Research Program (JSTP) effective for another 3 years.

The two sides also reviewed rich results derived from the bilateral cooperation, and thought highly of the active role played by PSA and JSTP in long-term strategic collaborations in major areas. CAO briefed the other side of the highlights of China's S&T development plan for the 12<sup>th</sup> five-year period, pointing out that both sides may explore possible collaborations in the areas of agriculture and food, semiconductor illumination, and astronomy, establishing new partnerships and cooperation mechanisms, and promote collaborations between industry, universities and research institutes. Zijlstra expressed his thanks to the warm reception made by Chinese side, wishing to foster a visionary bilateral

cooperation with China, and establish a stable and win-win partnership that counts on each other's strength.



### Themed Scientific Research

August 31, 2011- LI Jiayang, Vice President of Chinese Academy of Sciences, and Halbe Zijlstra, Dutch Secretary of Education, Culture and Science, jointly inked a document in Beijing to renew bilateral scientific and technological exchanges and cooperation for another 3 years. Thanks to the positive role played by Joint Scientific Thematic Research Program (JSTP), CAS has made the successful model part of its collaborations with other countries, including Switzerland and Finland.

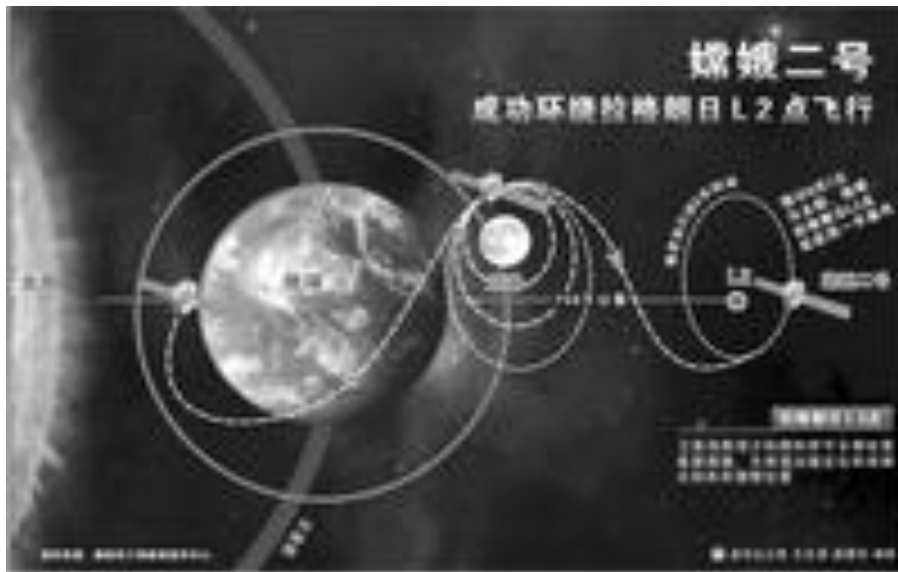
In 2008, China and the Netherlands signed a Memorandum of Understanding on Scientific Cooperation and Exchange, and made Chinese Ministry of Science and Technology, Ministry of Education, Chinese Academy of Sciences, Chinese Academy of Social Sciences, Royal Netherlands Academy of Arts and Sciences, and Netherlands Organization for Scientific Research the JSTP collaborators. Scientists from the two countries have been working on three themed studies, including "Integrated Water Resources Management", "Biomass Conversion" and "Medical Equipment Needed by an Aging Society". Chinese side has financed JSTP activities with some RMB 10 million, with a matching sum from the Dutch side. Chinese and Dutch scientists have established a stable, long-term, and close cooperation tie through in-depth collaborations in the areas of water resources management, energy, and medical support to aging people.

## Shenzhen and Dublin Opened Joint Medical Course

Shenzhen University has recently announced that it will open a medical doctoral program in collaboration with the University of Dublin, and the two universities will jointly build a world-class institute for health science and innovation. Aiming at personnel training and academic research, the collaboration package includes two parts: 1) the University of Dublin has agreed to open a medical doctoral course for Shenzhen University. All eligible medical graduates from Shenzhen University Medical School can apply for the course upon their graduation. The course will be chaired by the teachers from both Shenzhen University and the University of Dublin; 2) the two sides will jointly establish an institute of health science and innovation, making it a world leader in advanced health technology, health management, and informatics.

RESEARCH AND DEVELOPMENT

## Lunar Satellite's Extra Missions



As of April 1, 2011, China's Chang'e-II lunar satellite has reported a smooth and safe operation for 180 days, or half of its designed life span. It has completed all the missions on the schedule. The rich surplus fuel prompted scientists to immediately embark on some extra experiments.

In April 24-May 20, the lunar satellite took pictures of the two lunar poles, key to producing a high resolution full moon map. It reduced its orbit from May 21 to 23, and obtained high

resolution (1.5m) images of the Rainbow Bay area and 16-track zebra lines with a width of 6km. The images have been rearranged for a better view of the Rainbow Bay area, which will make more information available to the scientists who are selecting a proper landing site for Chang'e-III satellite.

Chang'e-II departed from the lunar orbit on June 9, 2011, heading to L2 point that is 1.5 million kilometers away from the Earth. At 23:27, August 25, it was guided into the Lagrange L2 circling orbit that is some 1.5 million km away, at a gravitational balance point between the Sun and the Earth. Lagrange L2-point is distanced from the Earth in some 200 earth radii. Upon the arrival, the satellite booted an array of onboard instruments, including solar wind particle detector, solar energetic particle detector, X-ray spectrometer, and  $\gamma$ -ray spectrometer, before letting them observe high-energy particles, solar winds, possible solar X-ray explosions, and cosmic  $\gamma$  blasts in a dynamic manner.

### Ocean-II Satellite Oriented

It was learned on September 3, 2011 from the State Oceanic Administration that Ocean-II satellite launched on August 16 has completed its orientation mission on August 29 ready for future missions, after a series of readjustments and control. A Doppler tracking system and a dual-frequency global positioning system were put into operation on September 1 to track and determine satellite orbit. The data transmission system has also embarked on its missions.

Up to date, the ground stations in Mudanjiang, Beijing, and Sanya under the National Satellite Marine Application Center has received, as scheduled, the test data sent by Ocean-II and the supporting data collected by the Doppler tracking system, dual-frequency global positioning system, and other platforms. Analysis shows that smooth transmission has been established between the ground stations and the satellite.

According to a flight control plan, the next step will be to boot and readjust radar altimeter and microwave radiometer, and kick off a low-speed communication test on the onboard laser communication equipment. The ground control will, if everything goes well, further test microwave scatterometer and scanning microwave radiometer. Once all the payloads being put into operation, the satellite will be switched to in-orbit tests for technical performance.

### Enhanced Space Seeds Breeding

It is reported from a forum recently held to discuss space seeds breeding activities that during the 12th five-year plan period, China Aerospace Science and Technology Corporation will launch some one hundred satellites (spacecraft and probes), which will

help China's agricultural sector Asia-Europe boost its innovation capability through more space seeds breeding activities.

Up to date, China has made 393 products lines of 9 major crops part of space breeding experiments, and screened out 70 new varieties that have passed validation checks at the national or provincial level. According to a briefing, the large-scale application of space engineered seeds has noticeably raised crop yields, improved the quality of agricultural products, optimized crops' adversity resistance, and laid a solid foundation for the commercial applications of space seeds breeding.

Earlier this year, space seeds breeding technology and associated industrialization has become a strategic emerging industry defined for the 12th five-year period. Chinese National Development and Reform Commission, Ministry of Agriculture, Ministry of Science and Technology, and Ministry of Finance have released policy documents one another, asking to strengthen the R&D and industrialization part of space seeds breeding activities, establishing a long-term mechanism for seeds payload, and making space seeds breeding part of modern seeds breeding industry.

## NEWS BRIEFS

### Transgenic Goats with A-Lactalbumin

Jiangsu Provincial Academy of Agricultural Sciences Institute of Animal Husbandry has recently reported the birth of several transgenic dairy goats carrying human  $\alpha$ -lactalbumin genes. The transgenic dairy goats have gone through a range of sophisticated operations, including gene cloning, carrier conceiving, cell transfection, somatic cell nuclear transfer, and embryo transfer, before hitting the final stage of birth. Scientists hope to breed out new dairy goat lines able to secrete human milk albumin using transgenic cloning technology. Researchers have so far harvested six dairy goat clones, including two having carried human lactalbumin genes.

### Scientific Expedition on Hexi Corridor Gobi

A comprehensive scientific expedition was officially launched on September 7, 2011 to investigate the Gobi deserts across the Hexi Corridor in Gansu. Jointly initiated by Gansu Institute of Desert Control, CAS Institute of Cold and Arid Region Environment and Engineering, and Lanzhou University, the 27-member expedition team will collect basic data on the formation and evolution of the Hexi Corridor Gobi and study associated ecological functions. Scientists will also look into a range of interesting aspects of the

Corridor, including type of Gobi and associated distribution, geological features, flora and fauna, hydrology, soils, climates, resources development and utilization, hazardous modes and magnitude, and the economic development of surrounding areas.

Before this, China has never launched a comprehensive investigation dedicated to the Hexi Corridor Gobi, though some preliminary and scattered studies were staged to understand the basic features of the deserts and associated causes, spatial distribution, and biodiversity. The expedition will not only enrich people's knowledge of the resource status in the Hexi Corridor Gobi, proposing rational utilization, protection, and control strategies, but will also provide scientific evidence for protecting the resources in the deserts.

### Spatial Information Industry Encouraged

Not long ago, eight core businesses in spatial information industry stationed at the Beijing Zhongguancun Science Park and three universities launched a Spatial Information Technology Industry Alliance, in an attempt to build a spatial information industry cluster worth one hundred billion RMB. According to a briefing, the Alliance is designed to provide a healthy development platform, an information sharing platform, an R&D platform, and a commercial application platform for the industry. It will work on industrial strategies, development plans, industrial standards, and legislations, accelerating the formation of a spatial information industry chain, and enhancing the core competitiveness of spatial information industry in Beijing. In addition, the Alliance will strive to promote the scale development of spatial information industry with satellite navigation, geographic information system, and advanced remote sensing as the core, taking advantage of the combined strength of application, industry, universities, research institutes, and management, and of the two major ongoing projects (Compass and High Resolution).

GUO Xinping, Alliance chairman, said the creation of Alliance will effectively promote the development of spatial information infrastructures and industry clusters, and facilitate the diffusion and application of proven technologies. In the coming 5-10 years, Beijing will see the birth of a sustainable spatial information industry cluster with an annual output worth several hundred billion RMB.

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