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# NEWSLETTER

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SPECIAL ISSUES

## 3,000 Young R&D Leaders for Next Decade

Seven Chinese government agencies, including the Ministry of Science and Technology, recently released a national medium and long term plan (2010-2020) for the development of human resources in the area of science and technology. It says in the coming decade, China will strive to train and bring out 3,000 young talented leaders for the development of

cutting edge technologies and strategic emerging industries.

The Plan says China will make young scientist's proprietary research activities part of the national science and technology projects, through the mode of "talents + projects", in an effort to enhance the capacity building of researcher contingents and young academic leaders, under the combined mode of strengthening the existing team of academic leaders, while reserving and developing the new one.

Referring to the policies to be adopted in the implementation, the Plan says efforts shall be made to support young scientists to be an independent leader of research projects, reforming the current S&T program management system, and securing more support to young scientists. Meanwhile, tilted support will be given to the research activities under the independent leadership of outstanding young scientists under the age of 35.

According to a deployment plan, China will see the steady expansion of its S&T personnel contingent. People who are engaged in R&D activities will be raised from 1.965 million person-year in 2008 to 3.80 million person-year in 2020, and R&D personnel will be raised from 1.05 million person-year in 2008 to 2 million person-year in 2010.

At the same time, China will make more money available for the development of S&T personnel. By 2020, China's per capita R&D expenditure enjoyed by R&D personnel will hit RMB 1 million/year from RMB 440,000/year in 2008, reaching the level of a moderately developed country. In addition, labor costs will see a reasonable increase as a proportion to the total R&D spending.

In the coming decade, China will work hard to build six major contingents for scientists having the strength of original innovation, researchers with strong innovation capability, engineers, young academic leaders, innovative entrepreneurs, and S&T management.

## New Favors for Returned Overseas Chinese

Not long ago, the Chinese Ministry of Human Resources and Social Security circulated a document on returned overseas Chinese students during the 12<sup>th</sup> Five-year Plan period (2011-2015). It says China will see a newly added population of returned overseas Chinese students by 500,000 during the period.

The document says during the 12<sup>th</sup> Five-year Plan period, the returned overseas Chinese students who have rendered services to the country will hit the level of 300,000 person-time. In addition, 50 more industrial parks will be created at different levels for returned overseas Chinese students, making the total of such parks 200 in number. Of them, some 50 parks will be jointly created by the Ministry of Human Resources and Social

Security and local governments. By then, returned overseas Chinese students' businesses stationed in the parks will reach 15,000 in number.

The document adds that China will strive to recruit the overseas Chinese students who fall under the following five categories: top talents and high caliber innovation personnel, leaders needed by major industries and key economic sectors, leaders and talented people needed by farming industry, talents urgently needed by modern service industry, and talents urgently needed by major social development sectors.

During the 12<sup>th</sup> Five-year Plan period, China will perfect the mechanism of helping returned overseas Chinese students render their services to the country and associated policies, providing improved services for them. Meanwhile, enhanced efforts will be made to attract more high-caliber overseas talents, creating more jobs for returned overseas Chinese students, and encouraging overseas Chinese to render services to the country.

## INTERNATIONAL COOPERATION

### China Launched Communication Satellite for Pakistan



At 00:15 August 12, 2011, China successfully blasted off a Pakistani communication satellite (Paksat-1R) aboard a CZIIIB launch vehicle, from the Xi'chang Satellite Launch Center. 26 minutes after lifting off, the Xi'an ground control received the data showing that the satellite was separated from the carrier rocket. It entered a geosynchronous orbit with a perigee of 204 km, and an apogee of 41,985 km, and an orbital inclination of 24.8 degree. Paksat-1R is built on a Dongfanghong satellite platform, equipped with 30 transponders under two bands and three antennas, covering South Asia, Middle East, East Africa, and some parts of Europe. The satellite is designed to accommodate Pakistani needs for telecommunication, broadcasting, and broadband multimedia services.

## Most Popular Destination for Asian Students

It is reported from China-ASEAN Education Exchange Week, the fourth of its kind held in Guiyang that China has registered a 1.9 million overseas Chinese students population during the period from 1978 to the end of 2010. Meanwhile, China has witnessed a large increase of foreign students population. In 1978, some 1,200 international students were studying in China. In 2010, the international students studying in China exceeded 260,000 in number. China has since 1978 accepted 1.45 million international students from 189 countries and regions.

Over the past three decades since China adopted a reform and opening-up policy, China has accelerated the internationalization of its education industry. In 2010, more than 260,000 international students were studying in China, or 200 times the same population in 1978. In 2010, the overseas Chinese students population hit the level of 284,700.

In July 2010, the Chinese government released a medium and long term outline for education reform and development. It stresses that efforts shall be made to introduce high quality educational resources, promoting cross-cultural exchange, and enhancing students' knowledge and understanding of different countries and different cultures.

LIU Baoli, Deputy Director of International Cooperation under Chinese Ministry of Education, said the Ministry has publicized last September a Study in China Program, in an attempt to implement the Outline. The Program has defined strategic objectives for foreign students studying in China in the coming decade, which will make China the most popular destination for foreign students in Asia in 2020. By then, foreign students who study in mainland China will reach 500,000 person-time. Of them, the higher learning population will account for 150,000 people.

## First TD-LTE Multimode Mobile Launched

Not long ago, China Mobile and ZTE jointly launched the world's first multimode TD-LTE mobile phone for test. According to a briefing, the test mobile is designed with a full solution developed by ZTE, working with Android 2.3 operating system. Equipped with a 3.5-inch capacitive touch screen, and 3D acceleration/mobile AP functions, the mobile supports three major network settings, including TD-LTE, TD-SCDMA, and GSM.

The test mobile saw the completion of its network demonstration just one day before the opening of the Universiade held in Shenzhen. Before that, the TD-LTE test network built by China Mobile was mainly working on terminals, including data card. The industry believes that the launch makes a major breakthrough to the industrial application of TD-LTE technology.

WANG Jianzhou, chairman of China Mobile, said substantial progresses have been made in the commercial application of TD-LTE technology, and major manufacturers, both at home and abroad, have rolled out pre-commercial products. 17 major domestic and overseas chip makers, including Qualcomm and Marvell, have embarked on the development of TD-LTE chips. It is believed that TD-LTE multimode data card will reach the pre-commercial level at the end of 2011, and the TD-LTE multimode mobile terminal expects to reach the same level in the second half of 2012.

## New Secrets about Graves' Disease

Chinese scientists have landed a breakthrough progress in studying Graves' disease, based on the disease samples gathered over years and the genome-wide association analysis. The findings derived from the study were published in the August 15 issue of *Nature-Genetics*.

Ruijin Hospital in Shanghai established a multi-center collaboration organization to collect Graves' disease samples, the largest efforts of its kind in the world, thanks to its many-year collaborations with domestic hospitals. Meanwhile, the National Human Genome Research Center has created a genome-wide association studies (GWAS) platform, the most comprehensive and complete of its kind in the country. Researchers from both collaborative parties made an in-depth study of hyperthyroidism among a large population, using GWAS techniques, and screened out two new susceptibility locus for the disease, which led to the identification of two related genes. One of them, named GDCG4p14, was

not reported before. Scientists said both genes may affect the functionalities of immune T-cells.

More interestingly, researchers found that a hyperthyroidism patient may have both forms of pathogenesis. It is known that after the treatment of hyperthyroidism, whether thyroid-stimulating hormone receptor antibody (TRAb) remains positive or not makes an important predictor to tell the possible relapse after drug withdrawal. Scientists further explained that, after drug treatment, the polymorphism of thyroid stimulating hormone receptor gene is closely associated with the persistently TRAb-positive Graves' disease, though no longer associated with the negative one.

### Novel Bph Resistant Rice Line

A team, led by ZHU Yingguo, an academician working for Wuhan University, had its Luohong 4A, a novel hybrid rice sterile line, passed an approval check on August 15, 2011. Based on the findings derived from the multi-year study, researchers screened out a number of insect-resistant materials of major application potentials from the sterile offspring of wild rice, and sorted out the new planthoppers resistant genes from multiple wild rice species, including Bph12, Bph14, and Bph15, which laid a ground work for cloning other brown planthopper resistant genes, and studying the molecular mechanism of resistance to such pests.

Luohong-4A is bred out using hybrid and marker-assisted selection techniques, enjoyed the combined strength of both Bph14 and Bph15 for enhanced resistance. According to ZHU, at the current stage, people are dealing with brown planthoppers mainly using pesticides, which would cause huge damages to the environment and increase the costs of production. The application of novel hybrid rice sterile line provides a fundamental solution to addressing the problem, facilitating the production of brown planthopper resistant hybrid rice.

NEWS BRIEFS

### Satellite for Dynamic Ocean Monitoring

China blasted off at 06:57, August 16, 2011 a HY-II environment monitoring satellite aboard a CZIVB launch vehicle, from the Taiyuan Satellite Launch Center. The new satellite is designed to monitor and investigate marine environment, an important tool for marine disaster prevention and mitigation, and for severe sea state forecast/early warning. It can also be employed to collect remote sensing data for marine scientific research, marine environmental forecast, and global climate change study. The satellite is operated by China

State Oceanic Administration.

## China's Series Maritime Satellites

According to China's maritime satellite development plan, China will develop its maritime satellites in three series: ocean color and environment satellites (HY-1), ocean dynamic environment satellites (HY-2), and marine radar satellite (HY-3). They will become the long-life and reliable operational platforms for monitoring marine environment. China will also establish sea-born radiation calibration and authenticity test fields, in an effort to build a three-dimensional ocean observing system led by maritime satellites.

Ocean color and environment satellites (HY-1) are designed to collect offshore and global ocean color and temperature data in a dynamic manner. Ocean dynamic environment satellites (HY-2) are made to collect offshore and global dynamic marine environment data in an all-time and all-weather manner, including sea surface wind, sea level, significant wave height, sea surface temperature among others. Marine radar satellites (HY-3) will be launched to collect the information on ocean wave fields, storm surge, internal waves, sea ice, oil spills among others, in a bid to monitor islands, coastal zones, and sea targets in an all-time and all-weather manner.

Following the launch of HY-2 satellite, China will accelerate the development of high-quality, long life, and reliable follow-up satellites of HY-1, HY-2, and HY-3, ensuring the continuous flow of maritime satellite data, providing support and service to marine disaster monitoring and forecasting, and for safeguarding China's marine rights.

## ITER Components into Mass Production

A ceremony was recently held at CAS Institute of Plasma Physics to celebrate the mass production of the components that make the operation of the International Thermonuclear Experimental Reactor (ITER) possible. WU Yu, leader of the ITER's conductor project, told reporters that China's ITER conductor production has achieved 100% localization. The Institute has built a workshop of more than 4,000 square meters, equipped with the proprietary conductor former and cable winch. In addition, the Institute has established the world's first 1,000-meter long piping line to facilitate the contractual missions.

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