CHINA SCIENCE AND TECHNOLOGY NEWSLETTER

Department of International Cooperation
Ministry of Science and Technology(MOST), P.R.China

No.9
May 10 2013

Headline News

National Science and Technology Major Project Boosts Emerging Industries

Under the coordination of the Ministry of Science and Technology (MOST), the National Science and Technology Major Project pools resources, facilitates large-scale scientific research and technological development, upgrades conventional industries and boosts emerging industries in areas of electronic information, energy and environment, bio-medicine, and advanced manufacturing.

One example is the Major Project on Manufacturing of Ultra-large Integrated Circuit launched in 2008. 105 sub-projects were implemented, receiving investment of more than 35 billion yuan. Thanks to the project, 30 enterprises in Zhongguancun(ZGC) formed ZGC IC Industrial Alliance in March 2013. The alliance

Monthly-Editorial Board:Building A8 West, Liulinguan Nanli, Haidian District, Beijing 100036, China
Contact: Prof.Liu Zhaodong E-mail: c_liuzdworld@sina.com hixiaosun@163.com http://www.caistc.com

covers almost every part of the IC industry chain, including materials, equipment, manufacturing, design, packaging, testing, public service platform, software and system integration, etc.

Another example is the Major Project on Broadband Mobile Communications, which speeds up the industrialization of TD-SCDMA and leads to major breakthrough in TD-LTE. By September 2012, the users of TD-SCDMA had reached 75.59 million, about 1/3 of China's mobile users. Chinese companies also broke grounds in multi-mode baseband chips and radio frequency chips, with annual shipment of chips surpassing 60 million.

The new drug project taking industrial bases as carriers, has boosted R&D of new drugs and helped foster the pharmaceutical industry clusters. Beijing Bio-medical Industrial Base set up a platform for translation of 56 research findings, with industrial value-added output totaling at 2.638 billion yuan in 2011. Under the support of the project, a number of comprehensive technology platforms were set up, e.g. GLP platform, GCP platform and industrial technology platform. These platforms strengthened studies on basic theories, facilitated the synergy of enterprises, universities and research institutes, and enhanced research and development of innovative drugs as well as service capacity. By December 2012, the project had received 62 new drug certificates, 2/3 with proprietary IP. 23 varieties went on market, with a total industrial value of 1.24 billion yuan. The gross value-added of 80 billion yuan was accumulated thanks to the project.

According to statistics, under the 10 major projects organized by MOST, close to 40 thousand applications were filed for patents, 3, 000 of which were international patents. Over 3,700 software and IC layout designs were completed, with new products, new materials, new techniques, more than 10,000 of new equipments, and technology standards totaling 8,000 established.

(Source: MOST, April 10, 2013)

S&T Management Information

Plan on Energy-saving Solid State Lighting Issued

To facilitate sound development of solid state lighting, save energy and cut emissions, the National Development and Reform Commission and the Ministry of Science and Technology as well as others jointly formulated *Plan on Energy-saving Solid State Lighting (SSL)*.

The development goals for SSL are set as follows:

1. Larger market share of SSL products

By 2015, above-60W incandescent lamps for general lighting services will retire, with the market share falling to 10%. Conventional energy-efficient products like energy-saving lamps occupy 70% of the market and LED functional lighting products hold 20%. Besides, LED-backlit LCD products and landscape lighting occupy 70% and 80% of the market respectively. Compared to conventional lighting products, LED road lighting could save electricity by 30%, interior lighting 60%, backlit products 50%, and landscape lighting 80%. The annual saving of electricity could add up to 60 billion KWH or 21 million tons of standard coals equivalent, cutting CO_2 emissions by 60 million tons.

2. Steady growth of industrial scale and major

companies

The output value of the LED energy-saving industry grows by 30% annually, reaching 450 billion yuan by 2015, with 180 billion yuan generated by LED lighting products. Accompanied by the optimization of the industrial structure, a batch of LED clusters will be established, fostering 10-15 leading companies that obtain core technologies, proprietary IP, famous brands and strong competitiveness.

3. Enhanced technology innovation accompanied by improved standards, testing and certification system

With breakthroughs in silicon-based LED chips, 80% of the components and parts for LED chips could be produced domestically. The luminous efficiency of core components and quality of products will reach world-class level within plan time. Large-scale MOCVD and key raw materials will be produced in China, with 70% of testing equipment manufactured domestically. High-level research and testing platforms as well as standards and certification systems will be established.

(Source: The Chinese Central Government's Official Website, February 17, 2013)

R&D Demo Project on Bohai-rim's Breadbasket Launched

The R&D Demonstration Project on Bohai-rim's Breadbasket was kickstarted jointly by MOST, Chinese Academy of Sciences (CAS), Hebei, Shandong, Liaoning and Tianjin in Dongying, Shandong Province on April 10. CPPCC National Committee Vice-Chairman and Science and Technology Minister Wan Gang, Vice Minister Zhang Laiwu, Shandong's Deputy Governor Zhang Chaochao, CAS Vice President Zhang Yaping, and some relevant personnel from science and technology departments of Hebei, Shandong, Liaoning and Tianjin attended the launch ceremony for the project.

Among China's 120-million-hectare farmland, 2/3 are mid-low yield soil. Through the 5-year demo project, some core demonstration zones and areas will be established in the 4 above-mentioned regions which is called the Bohai-rim region, aiming to increase crop production by 3 billion kg by 2017 and 5 billion kg by 2020.

Minister Wan pointed out that innovation is the fundamental way for ensuring China's food security. Medium and low yield land is a drag on steady increase of food production and sustainable development of agriculture, and is also something to start with for yield increase. With some 2.7 million-hectare Medium and low yield land and 0.7 million saline-alkali wasteland, the region has big potential for greater output and is poised to become Bohai rim's breadbasket. The demo project will drive production increase in Medium and low yield land of the region, relieve water and land resources constraint on agriculture, and promote substantial yield increase and the development of modern agriculture.

According to professor Li Zhensheng, academician of CAS and head of Advisory Expert Group of the project, CAS has obtained some experience in treating large-scale saline-alkali land in Yellow River-Huai River-Haihe River Region. The methods can be adapted to Bohai-rim region based upon its specific features. A combination of saline-alkali soil treatment, brackish water irrigation and plantation of salt-tolerant wheat varieties can raise crop production in Medium and low yield land by more than 20%. With the support of MOST, CAS has established some 470- hectare experimental zone, serving as a basis for the demo project.

(Source: MOST, April 11, 2013)

863 Project on "200MW IGCC Research and Demonstration" Passes Approval

The research project on "200MW IGCC Research and Demonstration" supported by the 863 Program in the 11th Five-year Plan period recently passed approval. This project is part of the Pilot Project on Polygeneration from Coal Gasification in the area of advanced energy technology.

Supported by IGCC and polygeneration of Chinese energy companies, the research is targeted at research and verification of key technologies such as large-scale coal gasification, upgrading of syngas fired heavy duty gas turbine, synthesis of liquid products, system integration, design, operation and control. Testing and demo of electricity generation from liquid products and IGCC were completed, underpinning the industrial development of IGCC.

Under the project, studies were conducted on a series of technologies, such as deployment of 200MW IGCC, low emissions of NOX and combustion with high humidity in intake air, gasification island, gas turbine island, and conventional island in line with IGCC, automatic control and operation. An improved system of 200MW IGCC was designed and tested in a medium-pressure full-scale test stand of syngas fuel nozzle and combustion chamber and experiment platform of syngas humidification.

(Source: MOST, April 8, 2013)

Chinese Agricultural Scientists Complete Draft Wheat D-Genome Sequence

Chinese Academy of Agricultural Sciences recently announced that it has completed the draft genome sequence of the donor of wheat D-genome--Aegilops tauschii, the first ever assembled genome sequence of wheat. This result was published on top journal Nature on April 4, signifying China's status among world leaders in wheat genome studies.

Researchers have completed the draft genome of 7 chromosomes and around 4.4 billion base pairs. The study has found that the numbers of disease resistance genes such as NBS-LRR and anti-biotic stress resistance genes in wheat D-genome have expanded significantly, greatly boosting disease and stress resistance and adaptability. The completion of draft wheat D-genome tackles the lack of wheat D-genome diversity, thus laying a foundation for tapping the desirable genes contained in the D-genome donor for the improvement of wheat breeding. This will shed light on comparative and functional genomics study, evolution, germplasm resources, and molecular breeding of wheat.

(Source: MOST, April 8, 2013)

China's First IGCC Demo Power Plant Up and Running

On April 9, a meeting was held to approve the gasification-based polygeneration demonstration project, which is financed under 863 Program. According to the meeting, Huaneng Group, in a joint effort with domestic research institutes, design institutes and manufacturers, has brought China's first IGCC demo power plant into operation, an important progress in IGCC core technologies. This signifies that China has mastered key IGCC technologies, possessing the ability for the design, building, commissioning and operation of IGCC power plants.

MOST CPC Leading Group member Wang Zhixue said at the meeting that over the past two decades, headway has been made in gasification and its optimum system design, which are of central importance to IGCC. The series of technological breakthroughs mean that China has already become one of the few countries possessing IGCC power-generation technologies. This will greatly boost China's influence and say over energy conservation, emission reduction and climate change response, and facilitate China's clean coal power generation technology and industry.

(Source: MOST, April 12, 2013)

1.5 Million Spectra Obtained by LAMOST Survey

On March 16, 2013, Cui Xiangqun, academician of Chinese Academy of Sciences and President of Chinese Astronomical Society briefed *Science and Technology Daily* reporter on the latest progress of Large Sky Area Multi-Object Fiber Spectroscopic Telescope, known as LAMOST, a national mega-science facility. Cui said that since its survey began in last September, LAMOST has obtained more than 1.5 million spectra.

LAMOST, with a 300 million yuan investment by China, is the world's largest wide-angle telescope with the highest spectrum obtaining rate. Completed in 2008, it is located in Xinglong Station of National Astronomical Observatories. The telescope establishes China's leading position in large-scale optical spectroscopic observations and wide-field-of-view astronomical research.

(Source: Science and Technology Daily, March 17, 2013)

Largest Thin Film PV Power Plant Completed

Hanergy Holding Group announced on April 7 that a 50MW thin film photovoltaic ground power plant the largest single unit of its kind was completed in Hainan Prefecture, Qinghai Province, which ushered in a new era for scaled use of the latest thin film PV technologies in China.

Mr. Li Hejun, Chairman of the Board of Hanergy explained that the use of thin film and flexible materials

is the future trend for the PV industry. Thanks to the national policies on distributed power generation, PV integrated buildings will become the mainstream for PV application in the coming years.

According to Li, thin film PV components feature low temperature coefficient, good power generation performance with weak light, low energy consumption, no pollution, high bendability and low demand on light angle, therefore they are most suitable for distributed solar power generation. Based on the data from National Bureau of Statistics, he estimates that the total floor area of buildings in China will reach 89 billion m2 by 2020. If 15% of the wall on East, South and West side of the building and 20% of the roof area are covered with solar panels and the conversion efficiency is 10% (the highest is 15.5%), the total installed capacity will stand at 1,000GW. If the solar panels operate 1,300 hours per year, they can supply 30% of electricity consumed in China and cut CO2 emissions by 20%.

So far, the global order for ground PV plant from Hanergy, the world's largest company in thin film solar cells, exceeds 10GW, and many of Hanergy's power plants both in China and overseas are grid connected.

(Source: Science&Technology Daily, April 8, 2013)

International Scientific and Technological Cooperation

MOST Deepens Cooperation with Gates Foundation

The Vice Minister of Science and Technology Zhang Laiwu indicated at the 2013 annual conference of Boao Forum for Asia that MOST will strengthen its cooperation with Bill & Melinda Gates Foundation on food production as well as development and manufacture of vaccines for major diseases.

MOST and the Gates Foundation signed an MOU in 2011 to jointly promote sustainable agriculture, poverty eradication and global health through the advancement of science and technology. The two parties have already identified 7 collaboration priorities including crop breeding, IT development in rural areas, TB drugs and polio vaccine, and have launched the first two pilot cooperation projects on green hybrid rice and inactivated poliovirus vaccine. The green hybrid rice project, by breeding and promoting new hybrid rice varieties in Asia and Sub-Sahara Africa, can help local farmers raise the output by at least 20%.

MOST and the Gates Foundation have been exploring new ways for collaboration over the recent years. So far, the two parties have set up a joint working committee, and through a data bank for cooperation projects the two sides can integrate resources and improve efficiency in their work and a joint fund has been established as well.

(Source: MOST, April 8, 2013)

International Science and Technology Cooperation Base (10): Yunnan Academy of Scientific and Technical Information

The Yunnan Academy of Scientific and Technical Information is a public research institute for sci-tech information analysis and study, sci-tech development strategy, technology transfer and international cooperation, technology evaluation, climate change and CDM study. It was approved by MOST as one of the first national technology transfer pilot institutes in November 2008 and a base for international sci-tech cooperation in August 2009. The Academy has 130 staff, among which there are 14 research fellows, 27 associate research fellows and 14 with PhD degree.

In 2004, the Yunnan Technology Transfer Center and Shanghai-Yunnan Technology Transfer Base were set up in the Academy, thus forming multiple public technology service platforms including Yunnan technology transfer platform, innovation resource sharing system and technology transfer platform for SMEs, and national renewable energy technology transfer platform for sub-regions of the Great Mekong River. So far, the Academy has established partnership with ASEAN Secretariat, The United Nations Asia - Pacific Centre for Technology Transfer, regional international organizations as well as sci-tech departments, universities, research institutes and enterprises from South and Southeast Asian countries.

With great support from MOST, the Academy teamed up with ASEAN Secretariat to hold "China-ASEAN Science & Technology Forum" in Yunnan. By working with APEC Secretariat and UN APCTT, the Academy organized 14 international forums, symposia and B2B meetings, such as "China-ASEAN Forum on New and Renewable Energies", "China-ASEAN Forum on Biomass Energy", "APEC Symposium on Solar Power Building System" and "APEC Biogas Forum". It has also organized a series of training programs facilitating technology transfer and product introduction to South and Southeast Asian countries, established extensive overseas contacts, and built pilot bases in Thailand, Vietnam, Malaysia, Laos and Nepal for demonstration and promotion of solar power integrated buildings, biogas utilization, new agricultural breeds and technology cooperation on agriculture, which has pushed forward international technology transfer to a great extent.

◎Website: www.istiy.yn.cn

◎Contact: Shang Xiaohui

◎Tel: +86-871-3113686

◎Email: Shangxiaohui2000@163.com

International Training Workshop on Rainwater Harvesting and Utilization

June, 2013

Lanzhou, China

Working Language: English

Objectives:

The aim is to enable the participants to understand basic theory, methodology and technology trend of rainwater harvesting technologies; to update technology and knowledge for the participants; to strengthen cooperation and to improve the level of other developing countries in the field of rainwater harvesting.

Organizer:

Gansu Academy for Water Conservancy

Address: NO.13,Guangchang Nan Road, Lanzhou, P.R. China

Postcode: 730000

Coordinator: Qin Li

Tel: +86-931-8463829

Fax: +86-931-8463829

E-mail: irrigation@126.com

International Training Workshop on Flue Gas Cleaning Technology for Coal-fired Power Plant

June, 2013

Chongqing, China

Working Language: English

Objectives:

The aim is to train the participants from developing countries and provide them with technology aid in the field of flue gas cleaning industry; to promote scientific and technological cooperation and exchange on environmental protection; to enhance relationship with other developing countries.

Organizer:

China Power Investment Corporation Yuanda Environmental Protection Co., Ltd.

Address: No.96, Jinyu Road, New North Zone, Chongqing, P.R. China

Postcode: 401122

Coordinator: Yang Xiu

Tel: +86-23-63062516

Fax: +86-23-63062517

E-mail: yangxiu70@163.com

(Editor's Note: All news in the issue are translated from Chinese texts for your reference. They are subject to checks and changes against official release of original Chinese or English texts.)